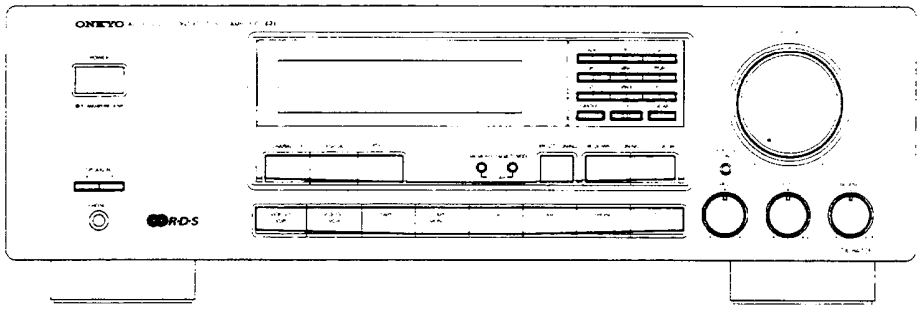
ONKYO

# TX-8410
# TX-8410R

## Audio Video Control Tuner Amplifier

### Instruction Manual



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**Thank you** for your purchase of the Onkyo A/V Tuner Amplifier.
Please read this manual thoroughly before making connections and turning on the power.
Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new A/V Tuner Amplifier.
Please retain this manual for future reference.

# Features

■ **Plenty of Pristine Power**
A mighty 100 watts per channel into 8 ohms, 20 Hz to 20 kHz, 0.2% THD (dynamic power: 165 watts/ch into 4 ohms) gives you ample muscle to drive virtually any speakers, and produce dynamically rich music, even at low volume levels. (TX-8410R: 100 watts per channel into 4 ohms, 1 kHz DIN)

■ **Discrete Output Stage Circuitry**
There are no inexpensive "package ICs" like those used in conventional amplifiers. The amplifier's output stage features costly, high-grade discrete circuitry. Your benefits are enhanced cooling, proven reliability and superior sonic performance. Discrete output stage circuitry also enables you to drive low-impedance loads effortlessly, without distortion.

■ **FM Stations Come in Loud and Clear**
Onkyo's two-mode (local/DX and auto/mono) proprietary Automatic Precision Reception (APR) is a tuner design innovation that uses a special microprocessor, surrounded by costly, first-class circuitry. It brings you the finest in clean, crisp, drift-free FM reception by constantly analyzing the quality of the incoming signal, sensing the signal's strength and noise content, as well as possible interference from adjacent channels. On the basis of this analysis, the APR circuits then make several "intelligent" decisions regarding selectivity (to minimize interference from neighboring stations), channel blending (to minimize noise and distortion), and sensitivity (to maximize long-distance reach while preventing overloads from nearby stations).

■ **RDS Hits the Radio Waves (TX-8410R)**
RDS (Radio Broadcast Data System) enables broadcasters to transmit a variety of information and services simultaneously with their standard programming fare. The information can then be picked up and displayed by your TX-8410R when it's tuned to an RDS station. Included are Program Type (PTY: searches and displays for listening categories), Traffic Program (TP: searches for stations broadcasting traffic information), Radio Text (RT: gives additional information such as upcoming songs) and Program Service (PS: displays stations' call letters).

■ **3 Station Group Presets (TX-8410R)**
Want to scan rock stations? Or just "your" stations? You can. The tuner's three group presets enable you to classify stations into separate categories — jazz, rock, classical, news, for example — or any other label you want, such as a family member's name. One simple touch of a button will let you scan your favorite stations, and whatever label you gave "your" stations will appear on the alphanumeric display — along with the broadcast frequency — to make station choices easier.

■ **RI Compatible Remote Control**
As you might expect, the full-function RI (Remote Interactive) remote control gives you command of the major functions of virtually any Onkyo component that bears the RI symbol.

■ **2 Video and 6 Audio Inputs**
For all your present and future AV needs.

■ **Video-1 to Video-2 Dubbing**
Makes it easy for you to dub laserdiscs or copy videos.

**FOR U.S.A. MODEL**

**Note to CATV system installer:**
- This reminder is provided to call the CATV system installer's attention to Section 820-40 of the NEC which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

**FOR CANADIAN MODEL**
**POUR LE MODÈLE CANADIEN**

- For models having a power cord with a polarized plug.

**CAUTION:** TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

- Sur les modèles dont la fiche est polarisée.

**ATTENTION:** POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

**FOR EUROPEAN MODEL**

- This apparatus complies with requirements of EC directive 87/308/EEC.

**ATTENTION FOR BRITISH MODEL**

- Replacement and mounting of an AC plug on the power supply cord of this unit should be performed only by qualified service personnel.
- IMPORTANT: The wires in the mains lead are coloured in accordance with the following code:
  Blue: Neutral
  Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

**Memory Preservation**
This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in order to charge the back-up system.
The memory preservation period after the unit has been unplugged varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time the unit has been unplugged. This period is shorter when the unit is exposed to a highly humid climate.

# Important Safeguards

PLEASE READ CAREFULLY ALL THE FOLLOWING IMPORTANT SAFEGUARDS THAT ARE APPLICABLE TO YOUR EQUIPMENT.

1. **Read Instructions** – All the safety and operating instructions should be read before the product is operated.
2. **Retain Instructions** – The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** – All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions** – All operating and use instructions should be followed.
5. **Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **Attachments** – Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. **Water and Moisture** – Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
8. **Accessories** – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child of adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

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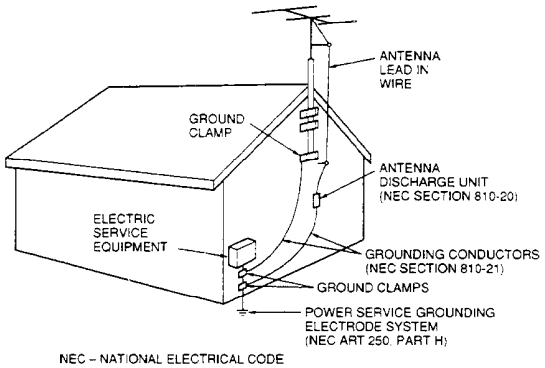
9. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
10. **Ventilation** – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
11. **Power Sources** – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
12. **Grounding or Polarization** – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
13. **Power-Cord Protection** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
14. **Outdoor Antenna Grounding** – If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.
15. **Lightning** – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
16. **Power Lines** – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17. **Overloading** – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
18. **Object and Liquid Entry** – Never push objects of any kind into this product through openings as they may touch dangerous voltage points of short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
19. **Servicing** – Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
20. **Damage Requiring Service** – Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a) When the power-supply cord or plug is damaged.
    b) If liquid has been spilled, or objects have fallen into the product.
    c) If the product has been exposed to rain or water.
    d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
    e) If the product has been dropped or damaged in any way.
    f) When the product exhibits a distinct change in performance – this indicates a need for service.
21. **Replacement Parts** – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
22. **Safety Check** – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
23. **Wall or Ceiling Mounting** – The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
24. **Heat** – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

**FIGURE 1:**
**EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE, ANSI/NFPA 70**


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)
NEC – NATIONAL ELECTRICAL CODE

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**WARNING:**
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

**CAUTION:**
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**CAUTION**
**RISK OF ELECTRIC SHOCK DO NOT OPEN**

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

# Precautions

**1. Warranty Card**

The serial number is written on the rear panel of this unit. Copy the serial number and model number onto your warranty card and keep it in a safe place.

**2. Recording Copyright**

Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.

**3. AC Fuse**

The fuse is located inside the chassis and is not user-serviceable. If power does not come on, contact your Onkyo authorized service station.

**4. Care**

From time to time you should wipe the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

**5. Power**

**WARNING**

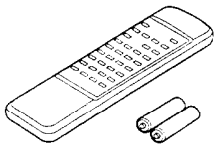
BEFORE PLUGGING IN THE UNIT FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.

- Some models are designed for use only with the power supply voltage of the region where they are sold.

| | |
|---|---|
| European and Australian models: | AC 230V, 50Hz |
| U.S.A. and Canadian models: | AC 120V, 60Hz |
| Worldwide model: | AC 220V/120V switchable, 50/60Hz |

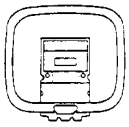
- **Voltage Selector (Rear Panel)**
  Worldwide models are equipped with a voltage selector to conform to local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before plugging in the unit. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.

# Supplied accessories

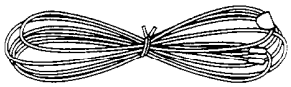


1 Remote control (RC-294S)
2 Batteries (size AA, R6, or UM-3)

1 Remote control cable

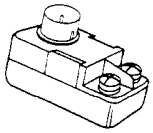


1 AM loop antenna

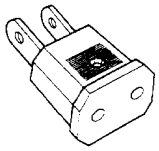


1 T-shaped FM antenna

**The following accessories are only available for worldwide models.**

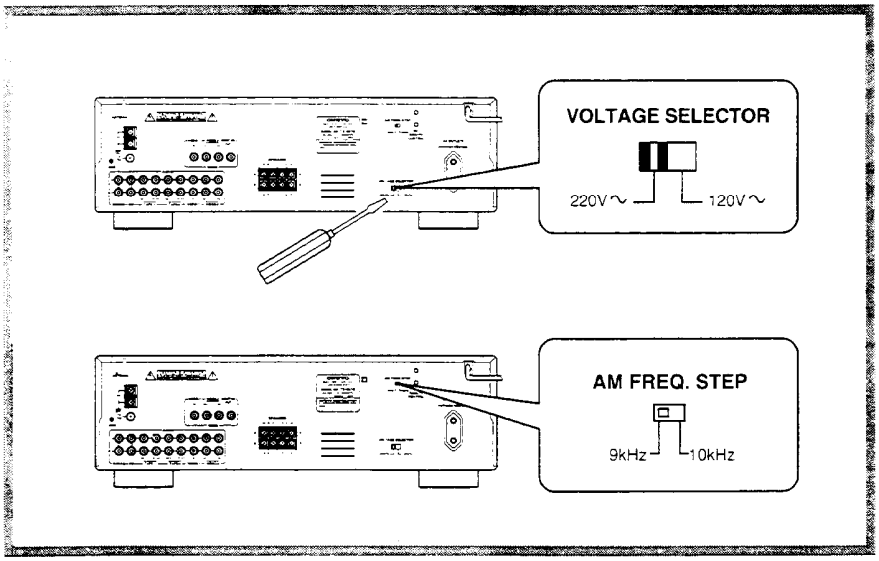


1 75/300 ohm antenna adaptor



1 CV plug (Shape may vary according to the area where purchased.)

# Setting the voltage selector and tuning step frequency (Worldwide models only)




## Voltage selector

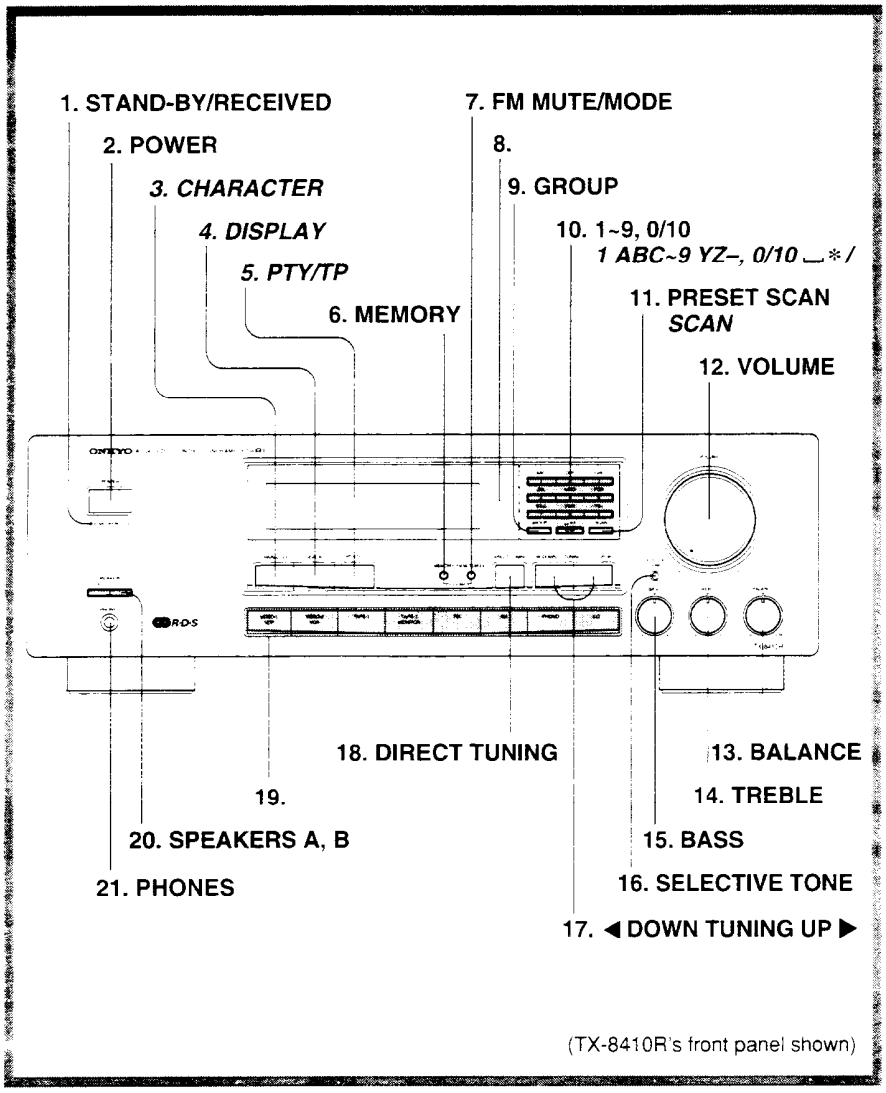
1. Determine the proper voltage for your area: 220V or 120V.
2. If the preset voltage is not correct for your area, insert a screwdriver into the groove in the switch. Slide the switch all the way to the right (120V) or to the left (220V), whichever is appropriate.

## AM tuning step frequency

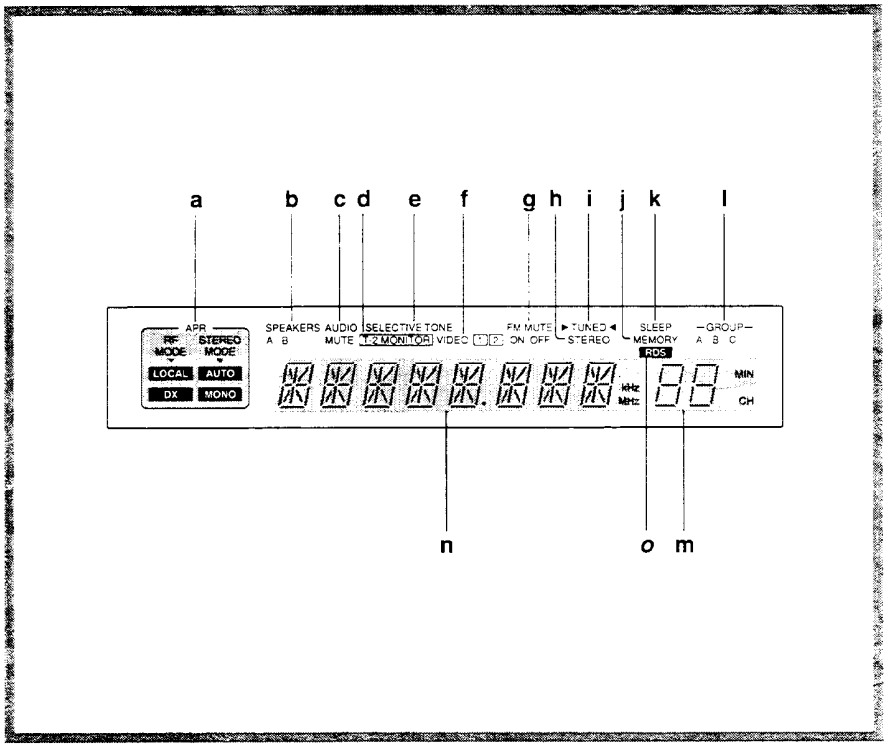
Worldwide models are equipped with a switch that controls the AM band tuning steps. Please set this switch to match the AM band tuning step frequency in your area.

U.S.A. and Canada : 10kHz
Other areas : 9kHz

# Control positions and names




(TX-8410R's front panel shown)




For more imformation about buttons or knobs, turn to page number listed in the [ ].

## Front panel

1. **Stand-by/Received indicator [14]**
2. **Power button [14]**
3. ***Character button [20]***
4. ***Display button [19]***
5. ***PTY/TP (RDS) button [19]***
6. **Memory button [17]**
7. **FM Mute/Mode button [16, 17]**
8. **Remote control sensor [6, 11]**
9. **Group button [17, 20]**
10. **Number buttons (TX-8410) [16, 17]**
    ***Number/character buttons (TX-8410R) [16, 17, 20]***
11. **Preset Scan button (TX-8410) [17]**
    ***Scan button (TX-8410R) [17, 19]***
12. **Volume control knob [14]**
13. **Balance control knob [14]**
14. **Treble control knob [14]**
15. **Bass control knob [14]**
16. **Selective Tone control button [14]**
17. **Tuning Up/Down buttons [16, 19, 20]**
18. **Direct Tuning button [16]**
19. **Input selector buttons [14, 21, 22]**
20. **Speaker selector buttons [14]**
21. **Headphone jack [15]**

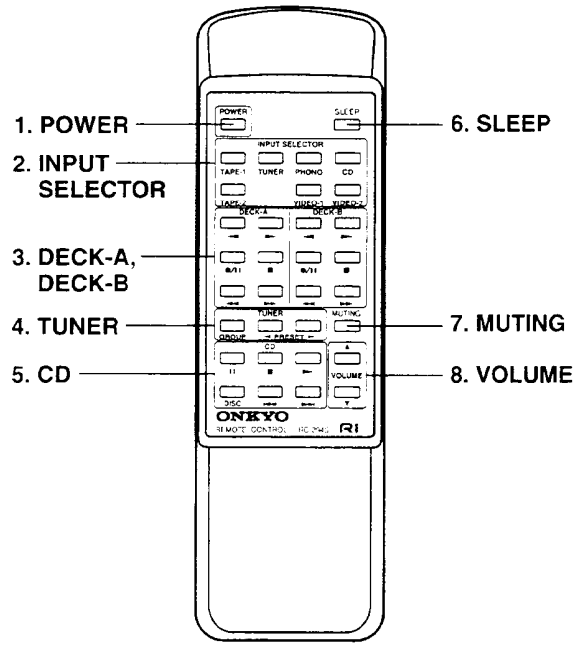
*NOTE:*
*Italic numbers (3, 4 and 5) are only for the TX-8410R features.*

## Display

If there is a protective film on the surface of the display, which is making it difficult to read the display, remove it.

a. **APR system indicators**
b. **Speaker selector indicators**
c. **Audio Mute indicator**
d. **Tape-2 Monitor indicator**
e. **Selective Tone indicator**
f. **Video input selector indicators**
g. **FM Mute On/Off indicator**
h. **FM Stereo indicator**
i. **Tuned indicators**
j. **Memory indicator**
k. **Sleep indicator**
l. **Group indicators**
m. **Preset station/Sleep time display**
n. **Multi display**
o. ***RDS station received indicator (TX-8410R only)***

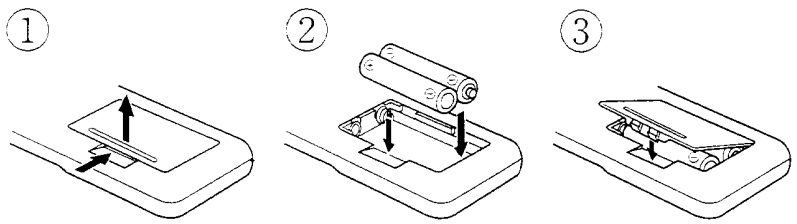
# Remote control

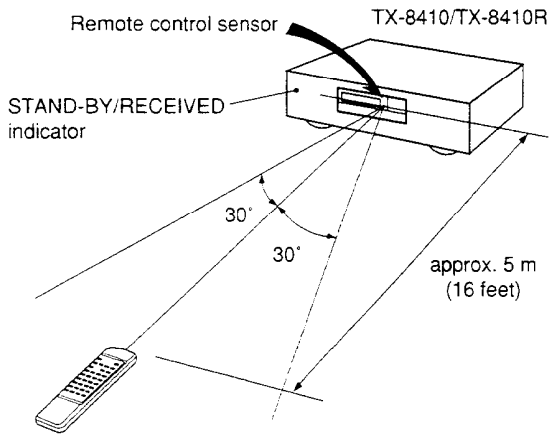



## Remote control

1. **Power button [14]**
2. **Input Selector buttons [14, 21, 22]**
3. **Tape deck operation buttons [11]**
4. **Tuner operation buttons [17]**
5. **CD player operation buttons [11]**
6. **Sleep button [15]**
7. **Muting button [15]**
8. **Volume up/down buttons [14]**

Insert the batteries into the remote control according to the illustration.




## Regarding the batteries

Average battery life is about one year, depending upon the frequency of use and the environment (temperature and humidity) in which the remote control is used. Only use batteries of the kind specified in the table below.

| Type | Voltage | Size |
|---|---|---|
| Manganese | 1.5V | AA, R6 or UM-3 |

**Warning**

- Do not leave an expired battery in the case – it may leak or damage the remote control.
- Do not use nickel cadmium (rechargeable) batteries.
- Replace both batteries at once: do not use one old battery and one new battery.

## Using the remote control

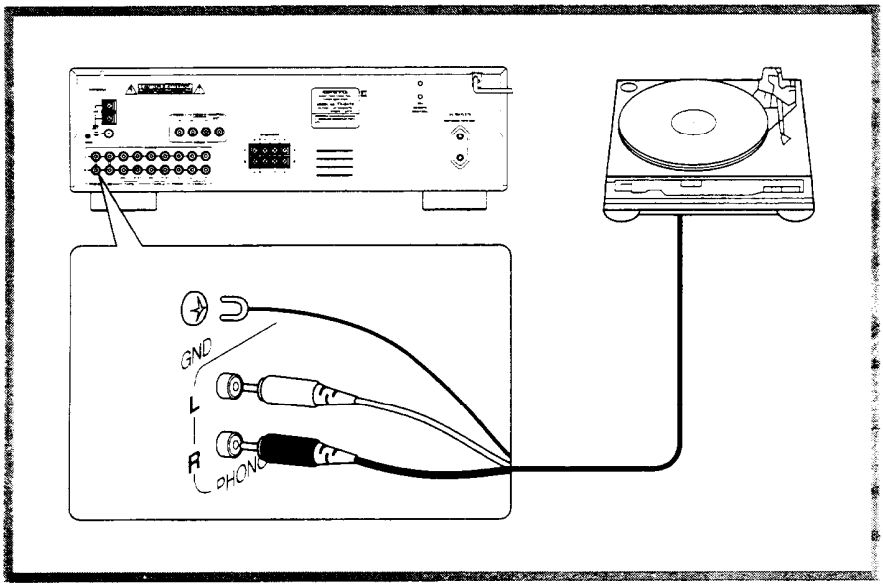
The STAND-BY/RECEIVED indicator lights when a signal is received from the remote control.

The following information will help you get optimal use from the remote control.

- Place this unit away from direct bright light, which can prevent proper operation of the remote control.
- Make sure audio rack doors do not have tinted glass. If this unit is placed behind such a door, this may prevent proper remote control operation.
- Using other remote controls in the same room as this unit's remote control may cause interference.

# Making system connections

- **Do not plug in the power cord until all connections have been made.**
- **On each pair of input jacks, the lower jack (marked R) corresponds to the right channel, and the upper jack (marked L) to the left channel.**
- **Please refer to the instruction manual of each component when making any connections.**



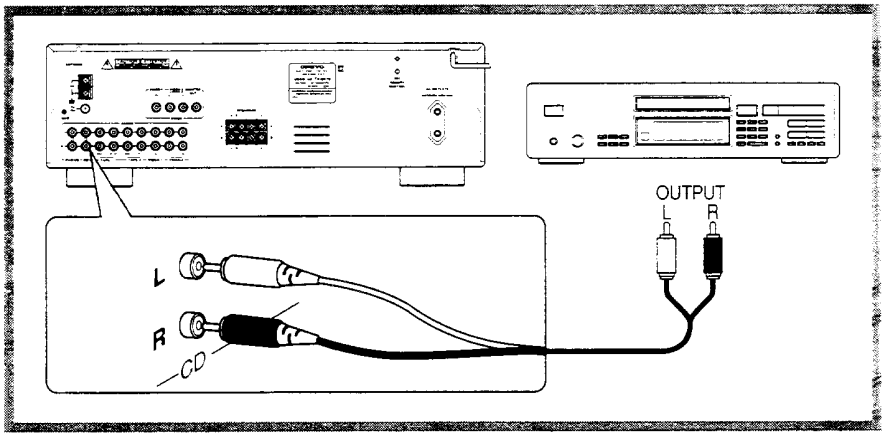

## Connecting a turntable (PHONO)

Connect the output leads of the turntable to the PHONO input jacks.

Be sure to connect the ground (earth) lead wire from the turntable to the ground terminal (GND). Turntables not provided with ground wires do not need to be connected in this way.

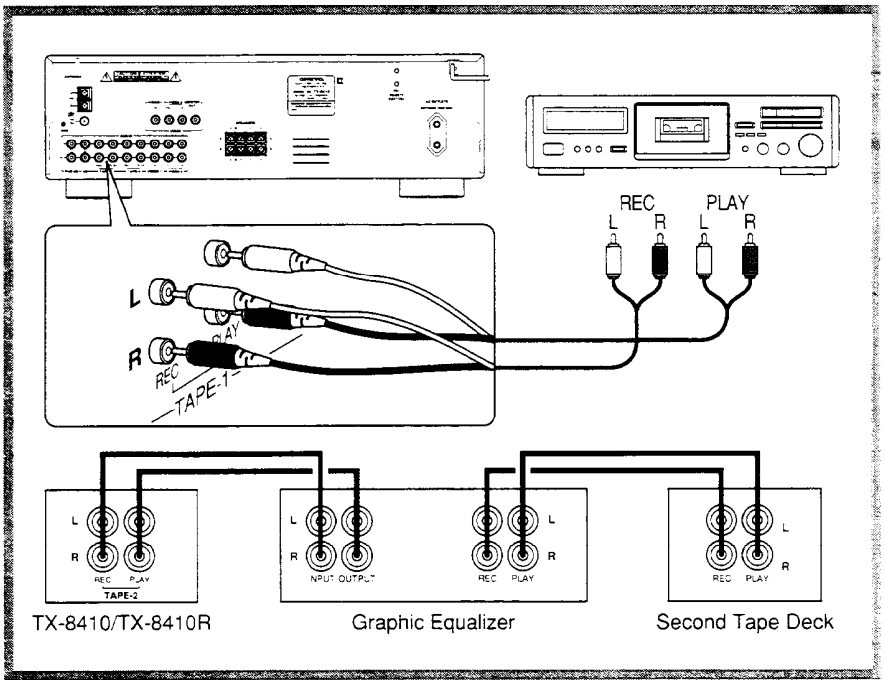
Place the turntable on a firm shelf or deck free from vibrations (especially those generated by the speaker system). If the turntable can pick up such unwanted vibrations, not only will the performance of the unit drop, but distortion in the bass frequencies and howling in the speakers may also occur.

- This unit is designed for use with turntables using moving magnet cartridges.




## Connecting a CD player (CD)

Connect a compact disc player to the CD input jacks.



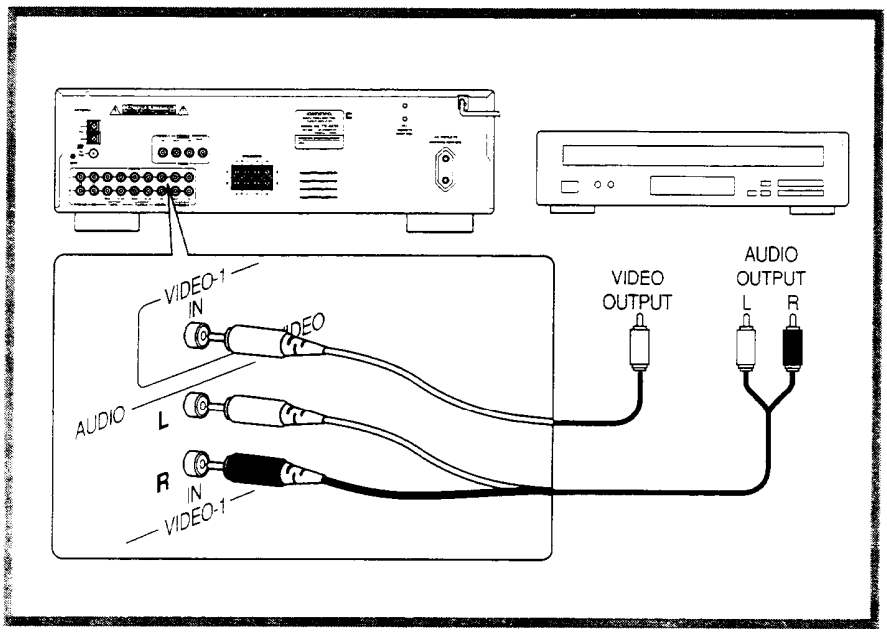

## Connecting a tape deck (TAPE-1, TAPE-2)

This unit has facilities for two tape decks. If you are using only one tape deck, connect it to the TAPE-1 jacks. If you have two tape decks, connect one to the TAPE-1 jacks and the other to the TAPE-2 jacks.

If you wish to use a graphic equalizer as well as two tape decks, connect the graphic equalizer to the TAPE-2 jacks, and connect the second tape deck to the tape jacks on the graphic equalizer. (See the diagram.)

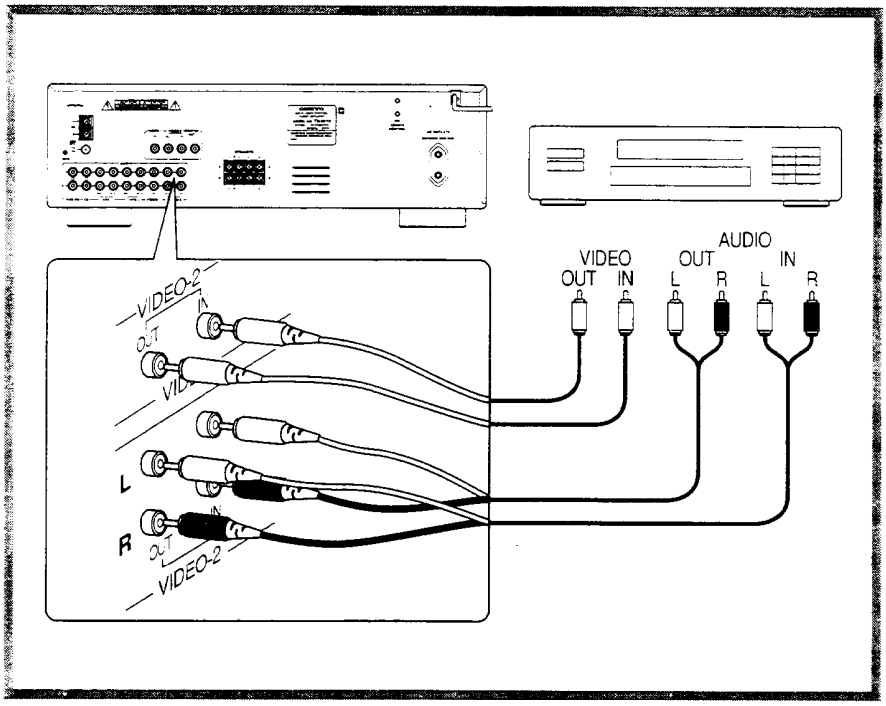
Connect the OUTPUT jacks on the graphic equalizer to the TAPE-2 PLAY jacks on the TX-8410/TX-8410R, and the INPUT jacks to the TAPE-2 REC jacks as shown.

See page 22 on how to use a graphic equalizer.




## Connecting a video disc player or video cassette recorder (VIDEO-1)

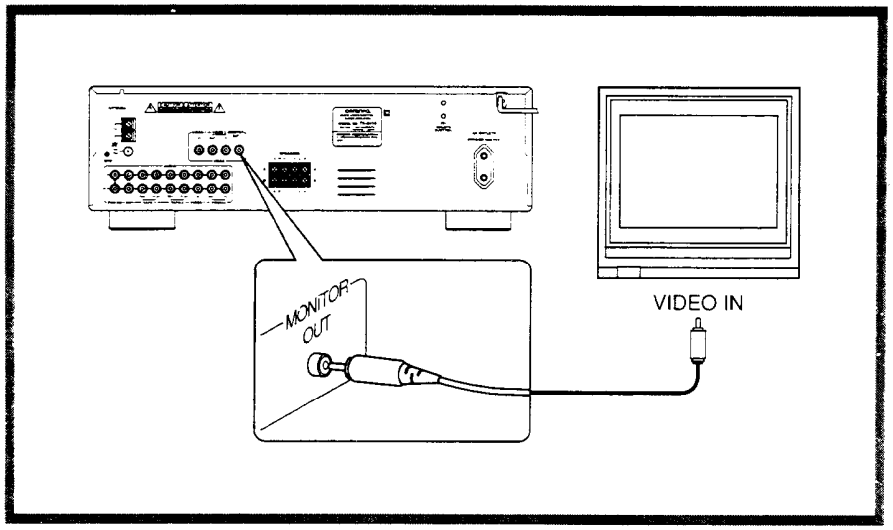
Connect the video output of the video disc player to this unit VIDEO-1 "IN" jack of VIDEO terminals and the audio output to the VIDEO-1 L and R "IN" jacks of AUDIO terminals. The VIDEO-1 jack is only for playback, there is no OUT jack. For more details, refer to the video player instruction manual.




## Connecting a video cassette recorder (VIDEO-2)

Connect the video output of the VCR to this unit VIDEO-2 "IN" jack of VIDEO terminals and the video input of the VCR to the VIDEO-2 "OUT" jack of VIDEO terminals. Then connect the audio output of the VCR to the VIDEO-2 L and R "IN" jacks of AUDIO terminals. Finally, connect the audio input of the VCR to the VIDEO-2 L and R "OUT" jacks of AUDIO terminals. For more details, refer to the VCR instruction manual.

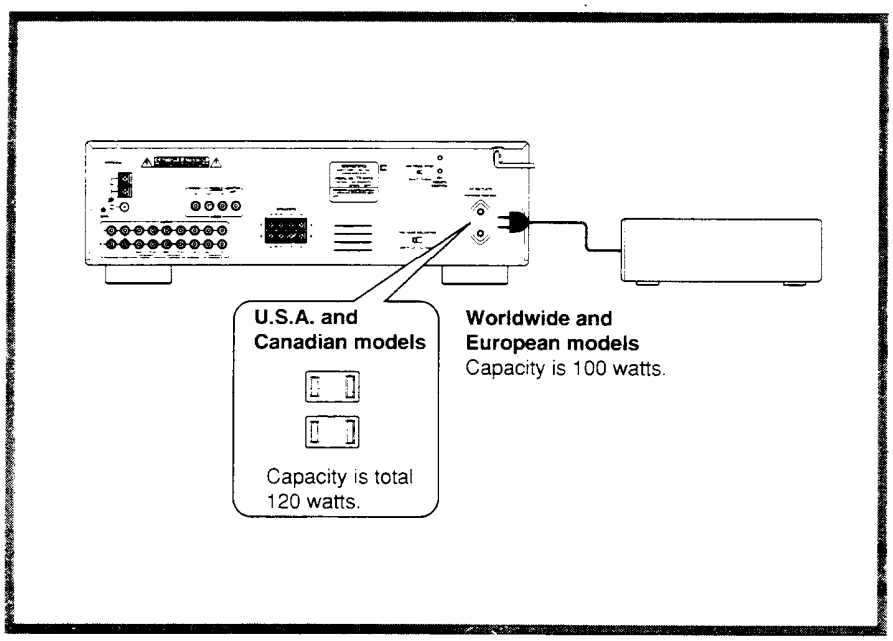
- When using a playback-only VCR, you only need to make the output connections.




## Connecting a monitor (MONITOR OUT)

Connect the TV video input to this unit MONITOR OUT jack. There is no need to perform an audio connection since sound will be sent directly from this unit to the speaker systems.

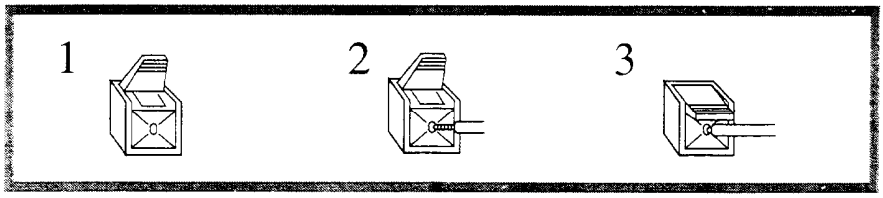
- This unit can be used with only a monitor TV equipped with a video input jack.
- Interference may be caused between the TV and this unit. If this interference occurs place this unit and the TV as for apart as possible.
  We do not recommend the use of a common TV/FM antenna (see antenna section).




## AC outlets

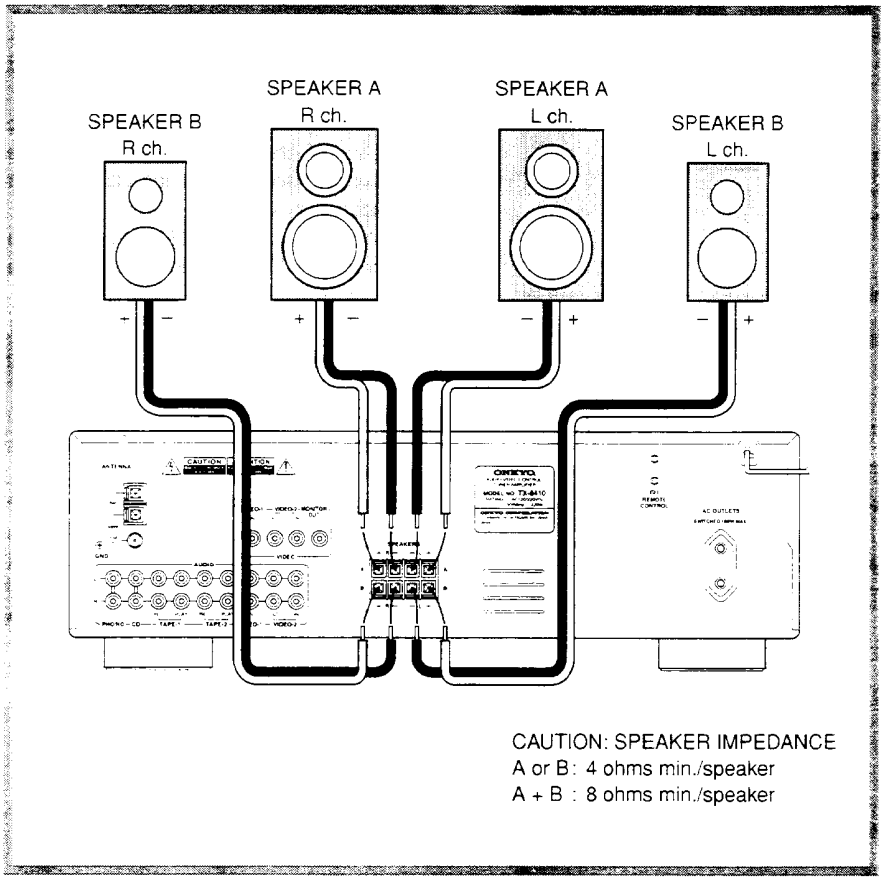
The SWITCHED outlets are switched on and off by the POWER button on the front panel or remote control.
The shape, number and total capacity of the AC outlets may differ according to the area where the unit is purchased. Be careful that other components connected to this unit do not exceed the capacity that is printed on the rear panel above the AC outlets.

# Making speakers connections




## Connecting the speaker cables

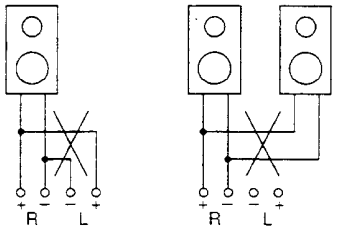
1. Open the lever.
2. Insert the wire.
3. Close the lever.

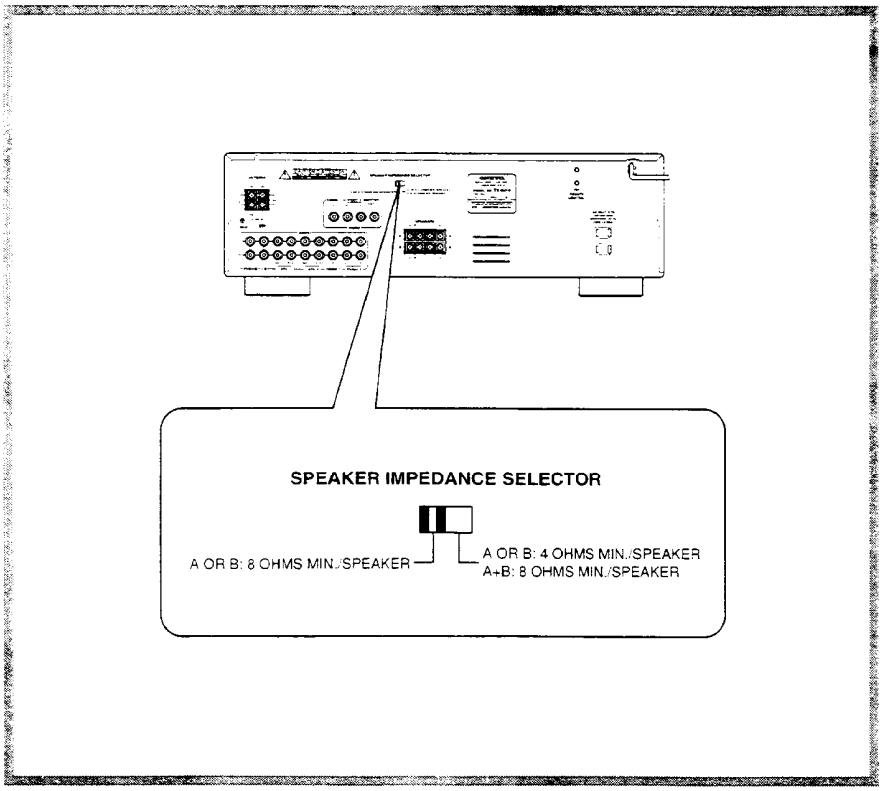



## Connecting the speakers

Two separate pairs of speaker systems can be connected to this unit at once.
Please connect each speaker according to the illustration, observing the correct connections for R, L, + and –.

- The load impedance of each speaker system connected to this unit must be at least 4 ohms. (If using only A or only B, 4 ohms min.; if A and B, 8 ohms min.)
- Do not use unnecessarily long or extremely thin speaker leads. If the DC resistance of the speaker leads is too high, the damping factor will decrease, adversely affecting the sound quality.
- When using only one speaker or when you wish to listen to monaural (mono), the single speaker should never be connected in parallel to both the right and left channel terminals at once.




## Speaker impedance setting for TX-8410 (U.S.A. and Canada models only)

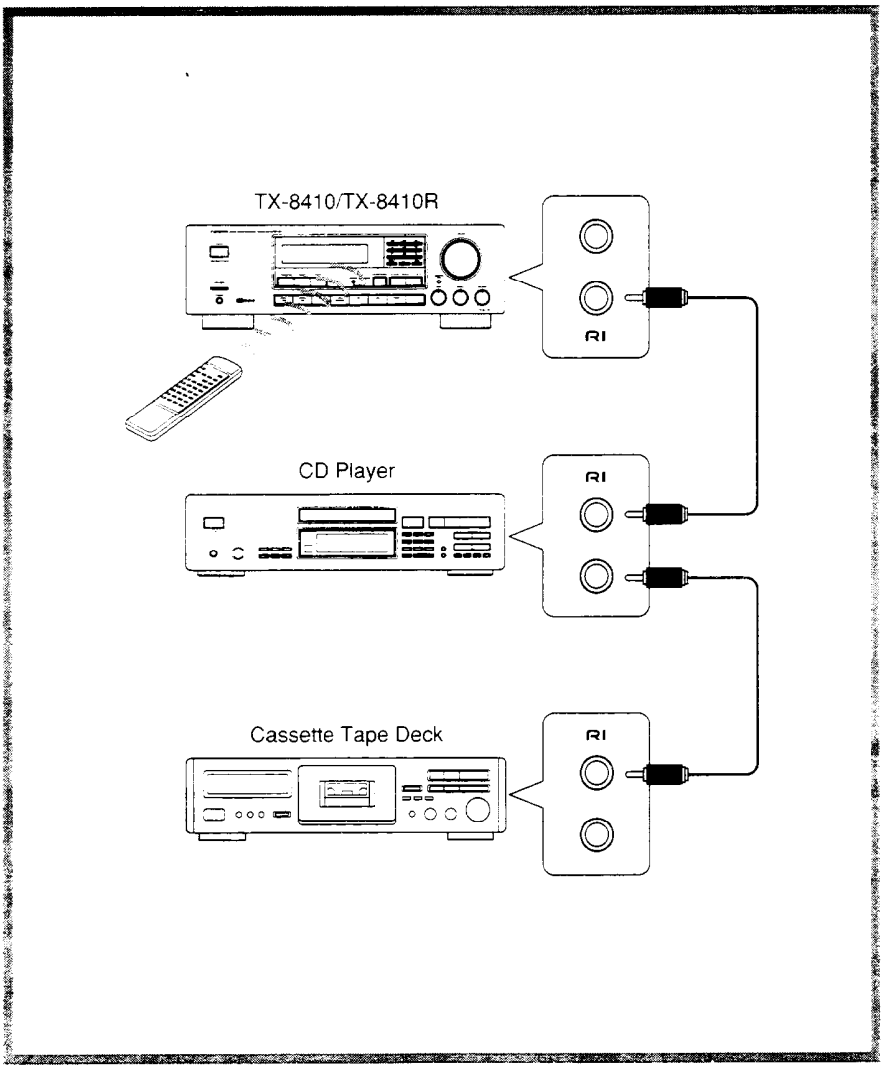
According to the impedance of the speakers used, set the SPEAKER INPEDANCE SELECTOR on the rear panel as shown in the table.

| Usable speaker impedance | Selector position |
|---|---|
| A or B speaker<br>4 ohms ~ 6 ohms | ⇨ |
| A and B speakers<br>8 ohms or above | |
| A or B speaker<br>8 ohms or above | ⇦ |

- Do not plug in the power cord during speaker system connection and operation of the SPEAKER IMPEDANCE SELECTOR.

# Connecting Onkyo components for RI operation

When Onkyo products with the RI (Remote Interactive) mark are connected to the TX-8410/TX-8410R, you are able to operate each component with the remote control of the TX-8410/TX-8410R. This means you can control your whole system with just one remote control. (The RI mark is an Onkyo mark.)



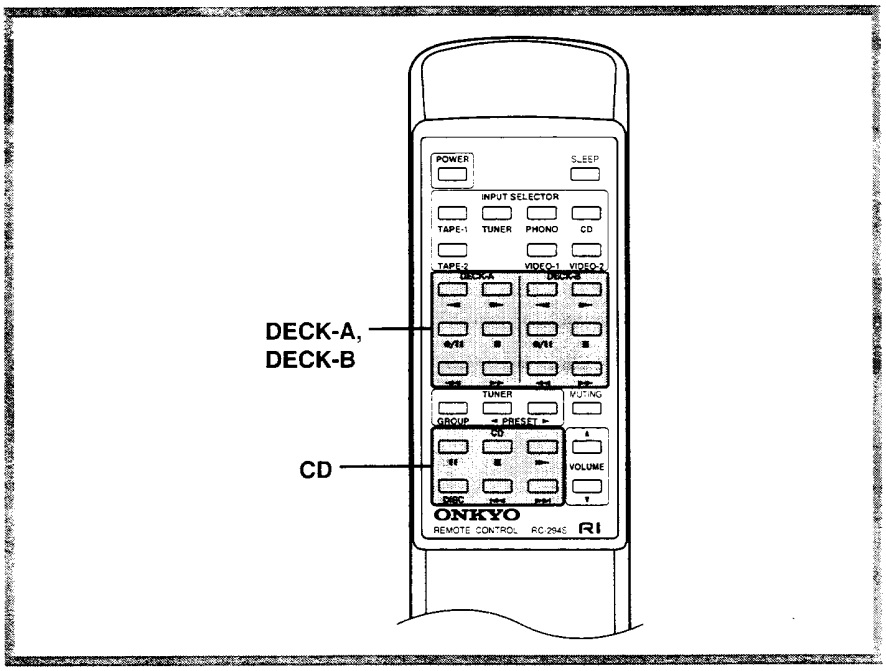

## Connections for remote control (RI)

When connecting Onkyo products, it is necessary to attach the RI cable to be able to use the remote control of the TX-8410/TX-8410R to control the entire system.

1. To use the TX-8410/TX-8410R with an Onkyo compact disc player and cassette tape deck bearing the RI mark, connect the components together using RI remote control cable, plugged into the REMOTE CONTROL jacks.
2. As the exact connection sequence of the RI cable is unimportant, you can connect from this unit to either the compact disc player or the cassette tape deck.
3. To operate correctly, the remote control must face towards the remote control sensor of this unit.

**NOTES:**

- The upper and lower RI remote control jacks have the same function.
- A cassette tape deck and compact disc player that have the Onkyo RI mark can be operated, using the accessory remote control.
- Remote control operation is not possible when only the remote control cable is connected – the audio connection cables must also be connected.
- An RI remote control cable equipped with a 1/8" (3.5mm) diameter miniature two-conductor phone plug is included with every compact disc player or cassette tape deck with the RI mark.




When you have made the connections mentioned above, you will be able to the use the following buttons.

### Tape deck operation buttons (DECK-A, DECK-B)

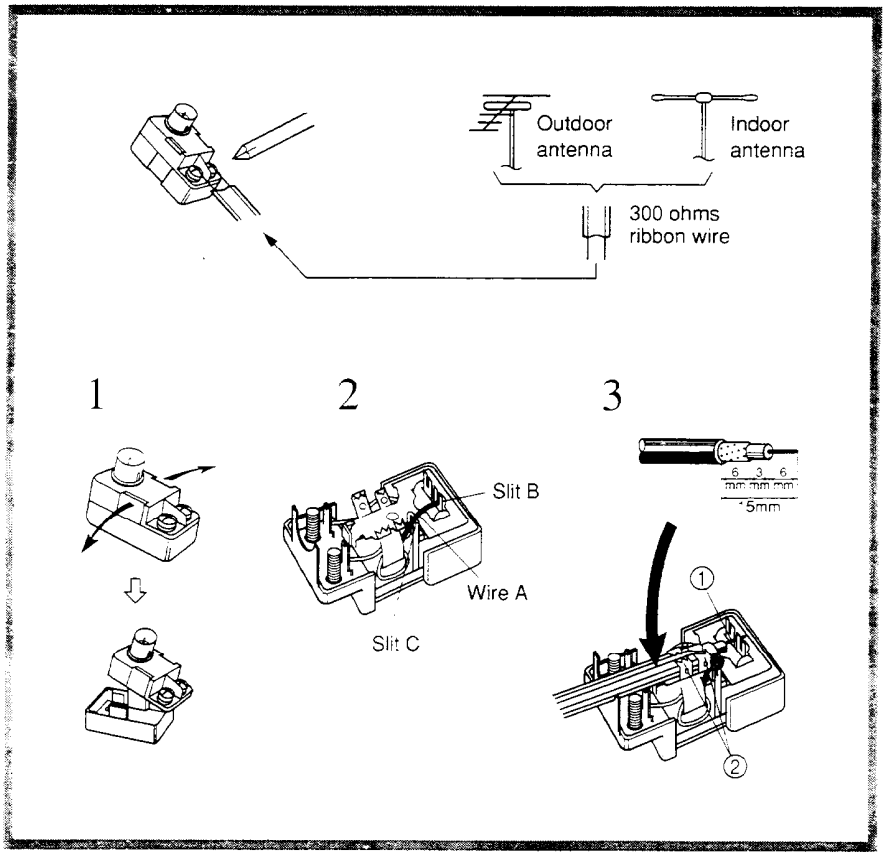
- ◄ : Reverse play button
- ► : Forward play button
- ●/II : Rec/pause button
- ■ : Stop button
- ◄◄ : Fast rewind button
- ►► : Fast forward button

- When only a single deck is used, operate DECK-B.

### CD player operation buttons (CD)

- II : Pause button
- ■ : Stop button
- ► : Play button
- DISC : Disc button for CD changer
- ⏮ : Down button
- ⏭ : Up button

# Making antenna connections



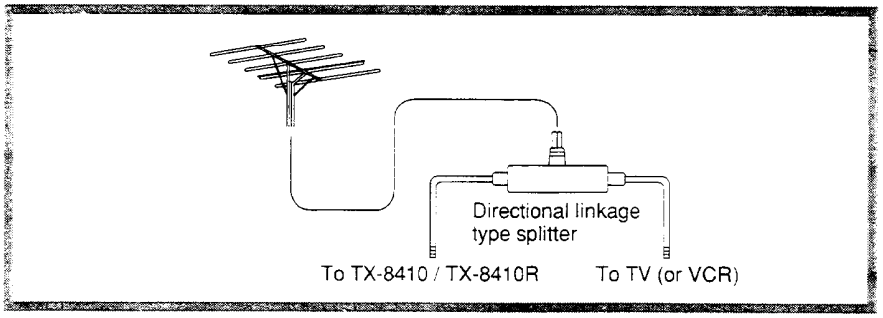

## Connecting the antenna cable to the 75/300 ohm antenna adapter (Worldwide models)

Connecting the 300 ohm ribbon wire:
Loosen the screws and wrap the wire around these screws. Then tighten the screws with a screwdriver.

Connecting the coaxial cable:

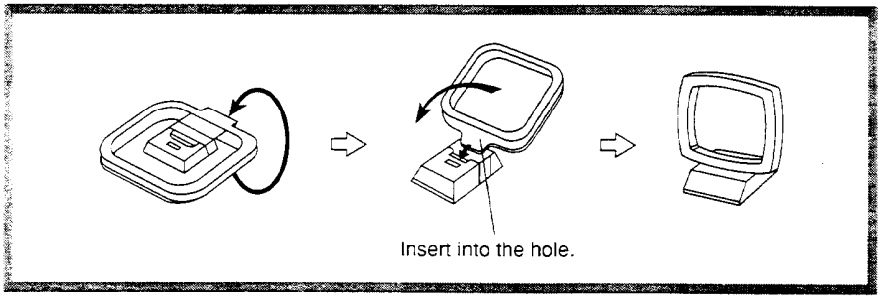
1. With your fingernail or a small screwdriver, press the stoppers outwards and remove the cover.
2. Remove the transformer wire A from slit B and insert it into slit C.
3. Prepare the coaxial cable as shown in the diagram.
   Connect the 75/300 ohm antenna adapter to the coaxial cable.
   ① Insert the end of the cable.
   ② Clamp it in place with pliers.

- This adapter is included if your TX-8410 is a worldwide model.



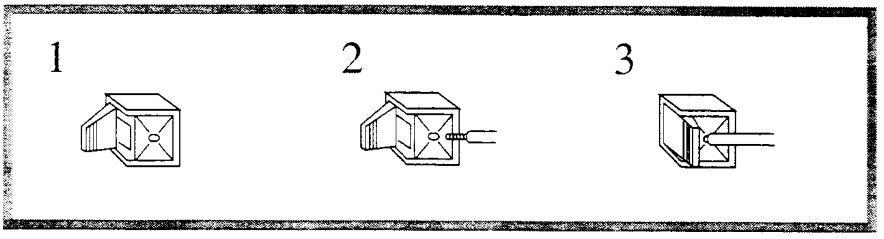

## Directional linkage

Do not use the same antenna for both FM and TV (or VCR) reception since the FM and TV (or VCR) signals can interfere with each other. If you must use a common FM/TV (or VCR) antenna, use a directional linkage type splitter.




## Assembling the AM loop antenna

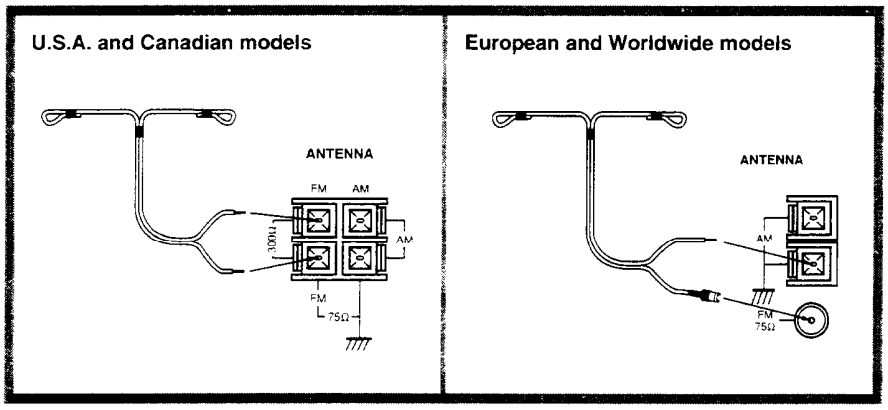
Assemble the loop antenna as shown in the illustration.




## Connecting the antenna cable

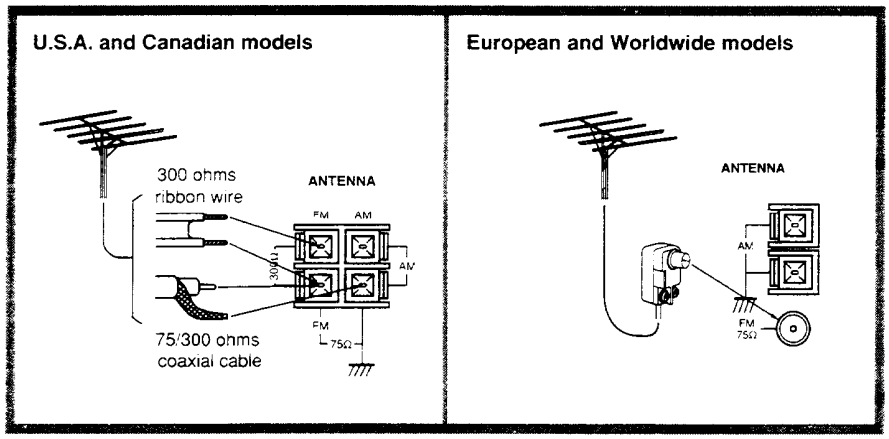
1. Open the lever.
2. Insert the wire.
3. Close the lever.

# Making antenna connections



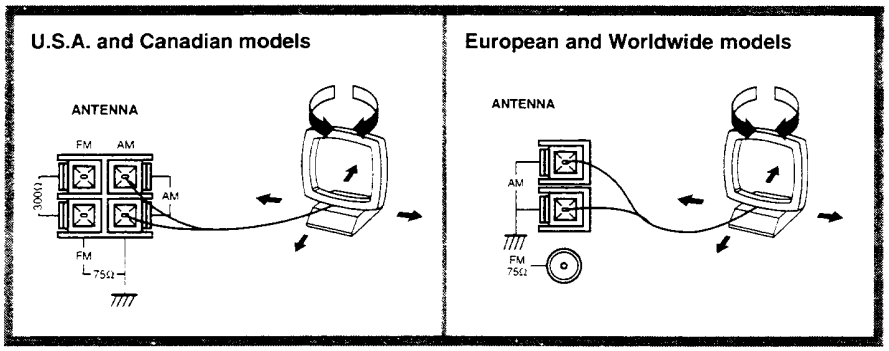

## Connecting the T-shaped FM antenna

The T-shaped FM antenna is for indoor use only. Extend the antenna and move it in various directions until the clearest signal is received. Fix it with push pins or similar in the position giving the least amount of distortion.



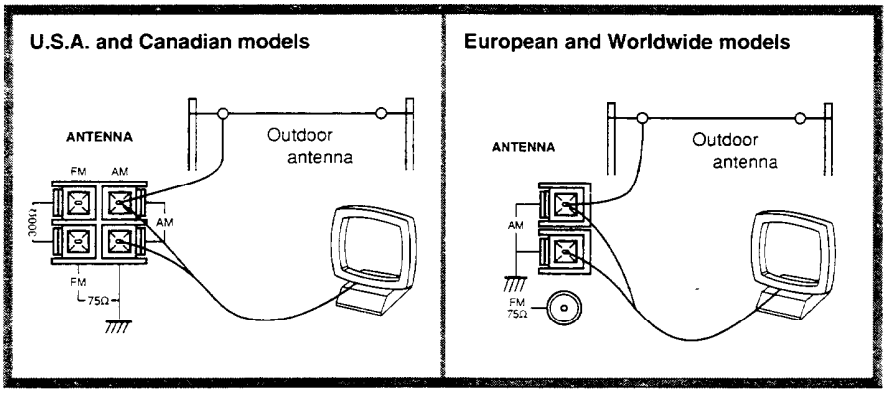

## Connecting an FM outdoor antenna

If the reception is not very clear with the attached T-shaped FM antenna, the use of an external antenna is recommended.
Please make sure that you comply with the following considerations regarding the location.
Keep the antenna away from noise sources (neon signs, busy roads etc.).
It is dangerous to put it close to power lines, so keep it well away from power lines, etc.




## Connecting the AM loop antenna

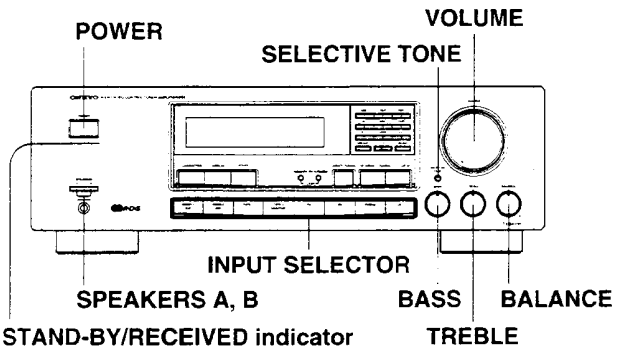
The AM loop antenna is for indoor use only. Set it in the direction and position where you receive the clearest sound. Put it as far as possible away from the main unit, TV set, speaker cords and power cord.

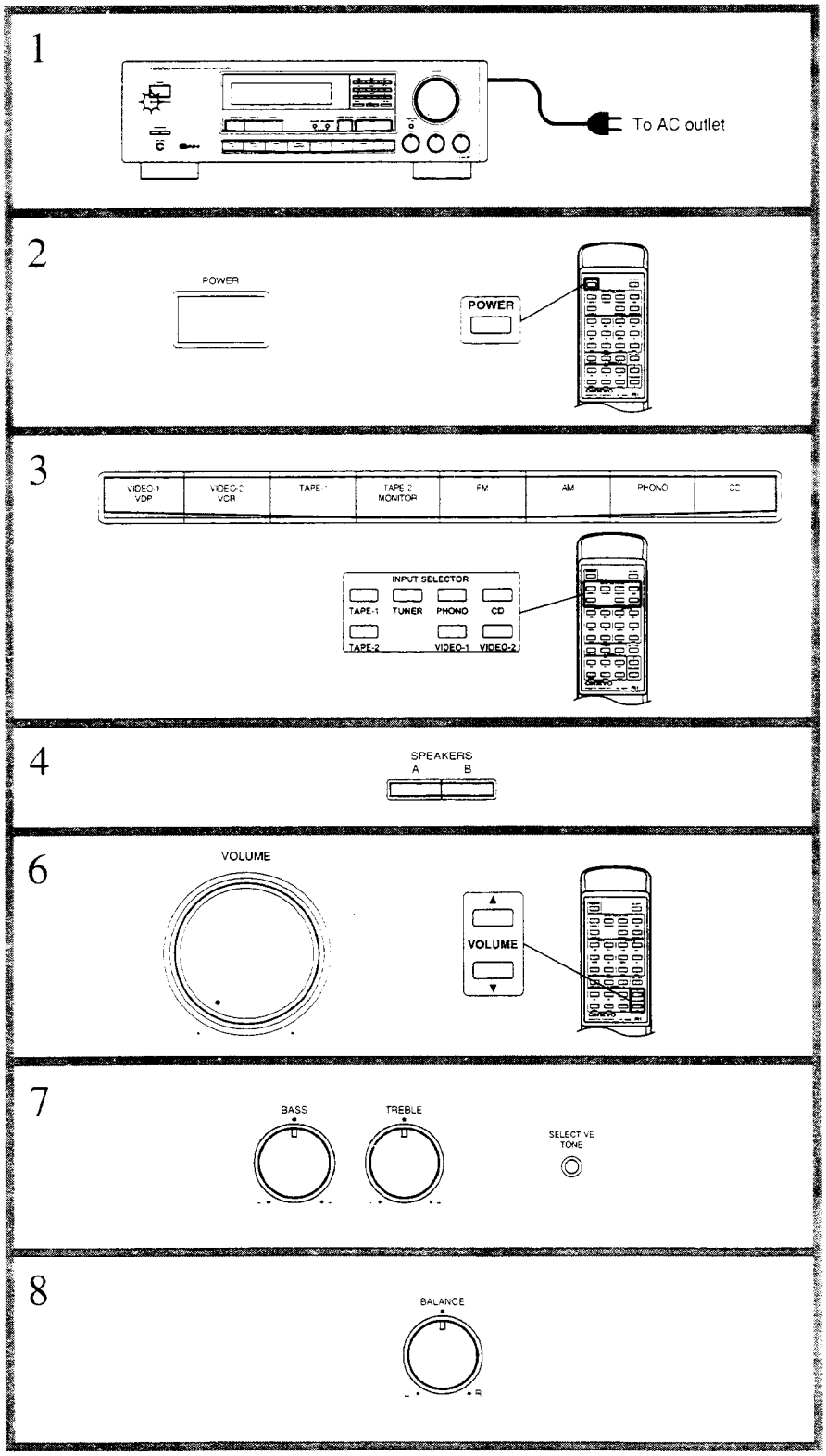



## Connecting an AM outdoor antenna

When reception is not satisfactory using the attached AM loop antenna alone, connection of an external antenna is recommended.
(Do not remove the AM loop antenna.)
The external antenna will be more effective if you stretch it horizontally in a high place above a window or outside.

# Basic operations



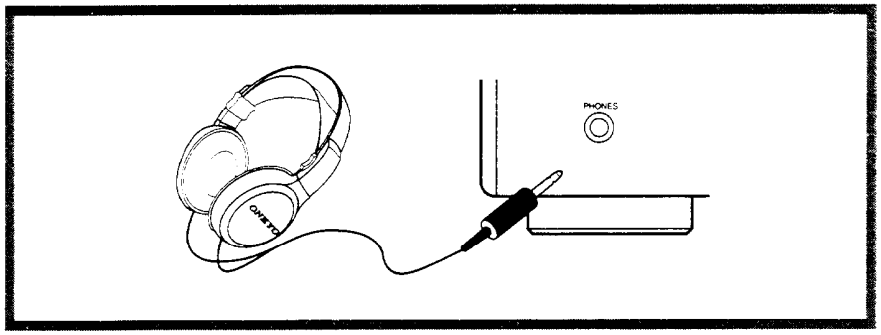




## Selecting and listening to source

Before plugging in the unit, confirm that all connections have been made properly.

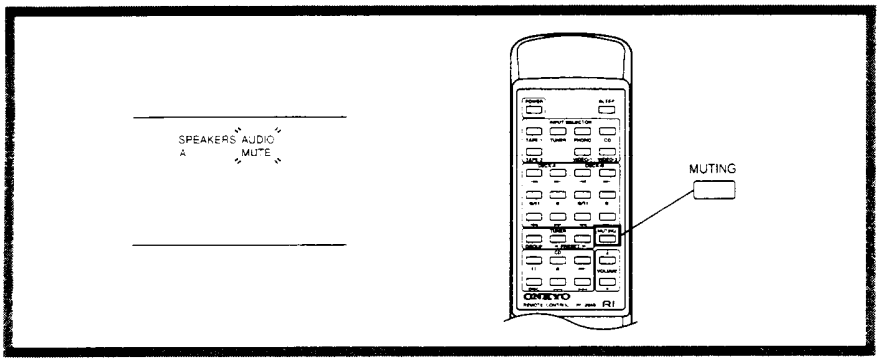
1. **Insert the AC power supply cord into the wall outlet.**
   The STAND-BY/RECEIVED indicator comes on.
2. **Press the POWER button.**
   The display lights up and the STAND-BY/RECEIVED indicator goes off.
3. **Select the source you wish to listen to using the input selector (e.g. PHONO).**
   The appropriate letters (e.g. PHONO) appear on the display.
4. **Select the speakers.**
   Select and press the button for the speakers that you want to listen to (SPEAKERS A and/or SPEAKERS B). The corresponding A and/or B indicator lights up on the display panel. You will hear from the speakers any sound going through this unit. If both SPEAKERS A and B are set to OFF, no sound will come from the speakers.
5. **Start play the selected input source.**
   Follow the operating instructions for that unit.
6. **Adjust the level.**
   Turn the VOLUME control knob clockwise or press the ▲ (up) button on the remote control to increase the volume level. Turn counterclockwise or press the ▼ (down) button on the remote control to decrease the volume level.
7. **Adjust to your desired tone.**
   **BASS:** Turn clockwise to boost or counterclockwise to attenuate the bass.
   **TREBLE:** Turn clockwise to boost or counterclockwise to attenuate the treble.
   **SELECTIVE TONE:** Press this button to clearly reproduce ultra low and high frequencies. The SELECTIVE TONE indicator lights up on the display panel.
8. **The BALANCE control knob is used to control the relative volume level of the left and right speaker systems or headphones.**

**NOTE:**
The power does not shut off completely by just turning the power off. So power cord should be removed from AC outlet when not in use for a prolonged time.




## Listening using the headphones

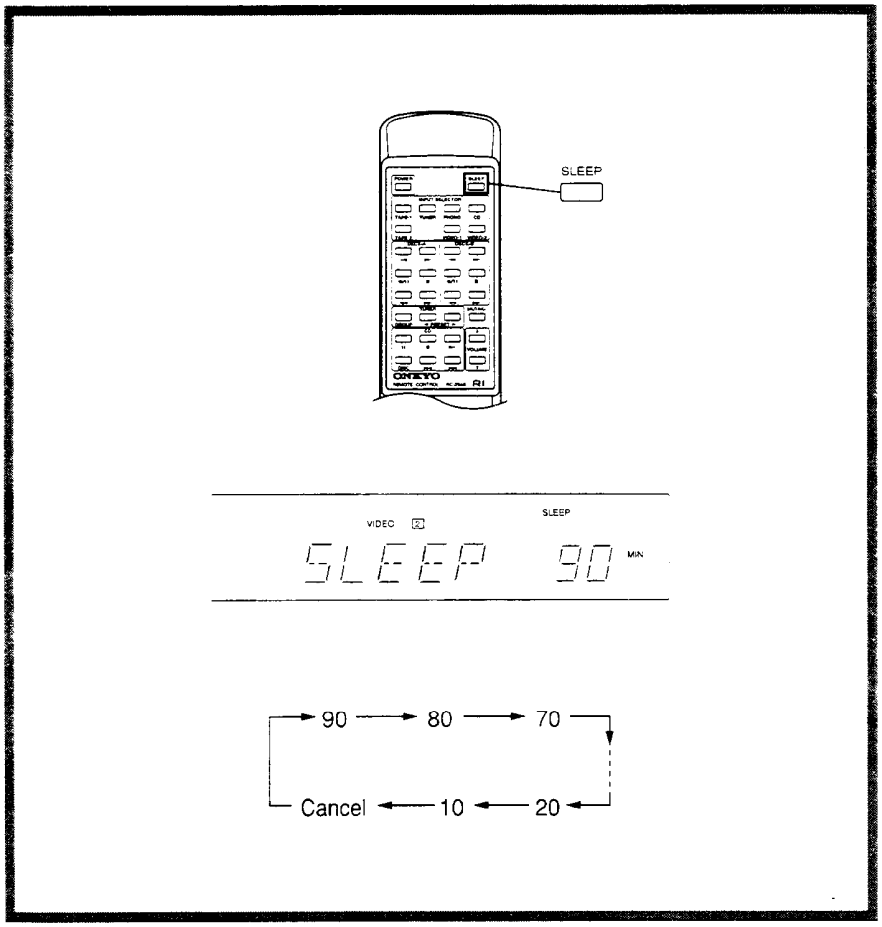
Stereo headphones with a standard binaural (stereo) plug can be connected here.
When the headphone plug is inserted, the speakers are not automatically muted but can be controlled with the SPEAKERS A/B buttons.




## Temporary muting

Press the MUTING button on the remote control.
This button temporarily switches off the sound from the speakers or headphones.
The AUDIO MUTE indicator will flash.

To cancel,
- press the MUTING button again, *or*
- turn the power off, then on.




## Sleep facility

The sleep timer can power off the system after a specified time period.
To operate this function, use the remote control supplied with your TX-8410/TX-8410R.

1. **Start the source playing that you would like to listen to. (CD, tape or radio broadcast)**
2. **Set the amount of time after which you want the system to turn off.**

The sleep timer works for up to 90 minutes. You can shorten the timer by 10 minutes increments by pressing the SLEEP button until the desired time has been reached.
When the set time comes, the power will be switched off automatically.

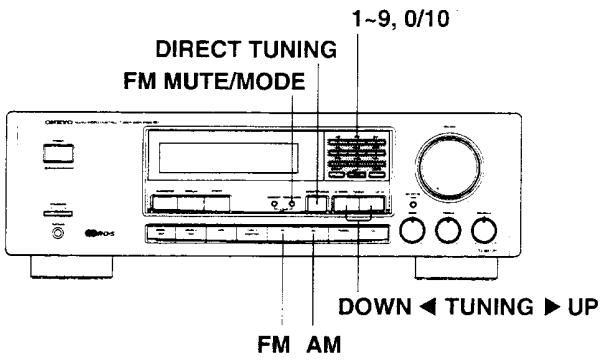
## Cancelling the sleep setting

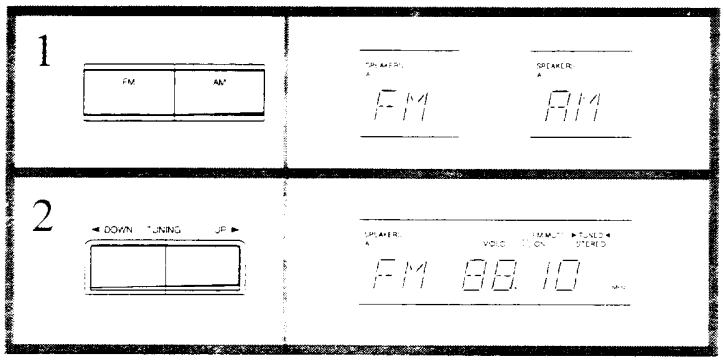
Press the SLEEP button until it changes to the source display you are listening to.
*or*
The timer can also be cancelled while it is in operation, by turning off the power.

## The direct function feature

When a compact disc player, and tape deck with the **RI** mark are connected together, you can use the direct function feature.
Simply by directly operating the desired component (compact disc player or tape deck), this unit's Input Selector automatically switches to that component.
It is not necessary to switch this unit's Input Selector when changing listening sources.

# Receiving stations

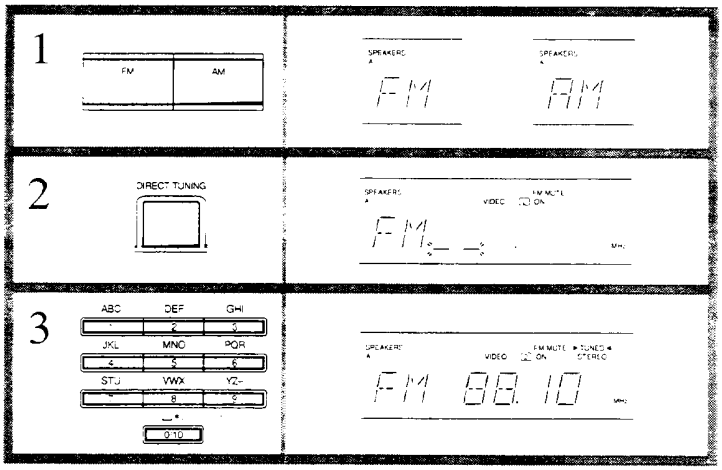



## Manual tuning

1. **Press the FM or AM button.**
2. **Use the TUNING UP/DOWN buttons to change the frequency.**
   UP.....the frequency increases.
   DOWN.....the frequency decreases.

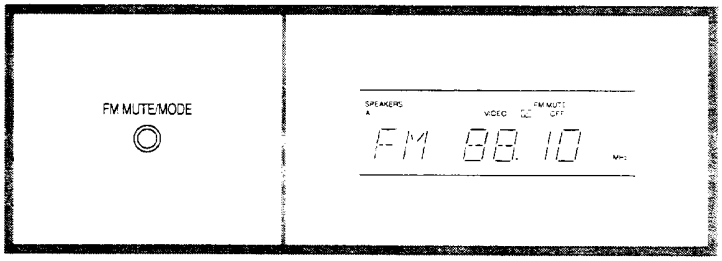
- The frequency is changed in 50kHz steps in FM and 10kHz (or 9kHz) in AM when the TUNING UP/DOWN button is pressed in single steps.
- In FM, if this button is held continuously for more than 0.5 seconds, the frequencies are scanned automatically (FM auto tuning mode). When a broadcast is received, scanning stops.




## Direct tuning

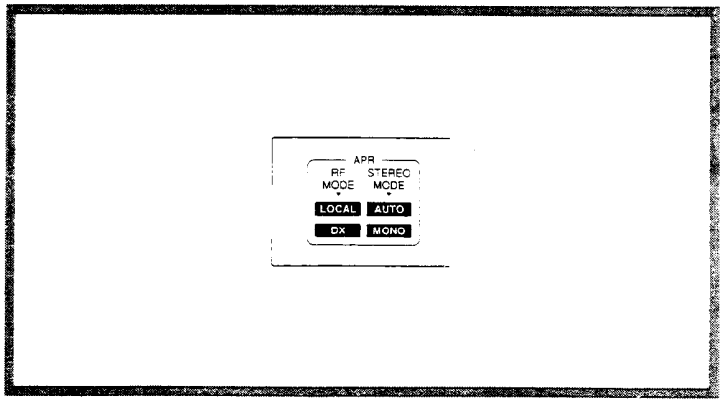
1. **Press the FM or AM button.**
2. **Press the DIRECT TUNING button.**
   The "_ _" will flash 16 seconds in the frequency display.
3. **Enter the frequency with the number buttons while the cursor are flashing.**
   Use the 0/10 number button to enter a 0.
   Example: 88.10MHz 8 → 8 → 1 → 0/10

- If you enter a frequency that is out of range, this unit will return to the previous frequency. If this happens, repeat the procedure.
- When receiving AM broadcasts with a 10kHz step, entering a number for the 10kHz digit will set the 1kHz digit automatically to 0.
- When receiving an FM station, follow the procedures for the RDS (only TX-8410R) and APR functions.




## Listening to a FM stereo radio stations

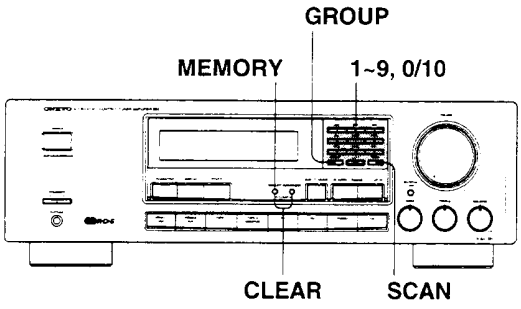
If you tune in a stereo FM station, the STEREO indicator will be illuminated if the signal is sufficiently strong.
If the signal is weak, it may be impossible to tune in to your desired station. In this case, tune in as follows.
Press the FM MUTE/MODE button and FM MUTE OFF indicator lights. At this time, the station will be in mono and interstation noise will be heard. Select the station you want listen to.

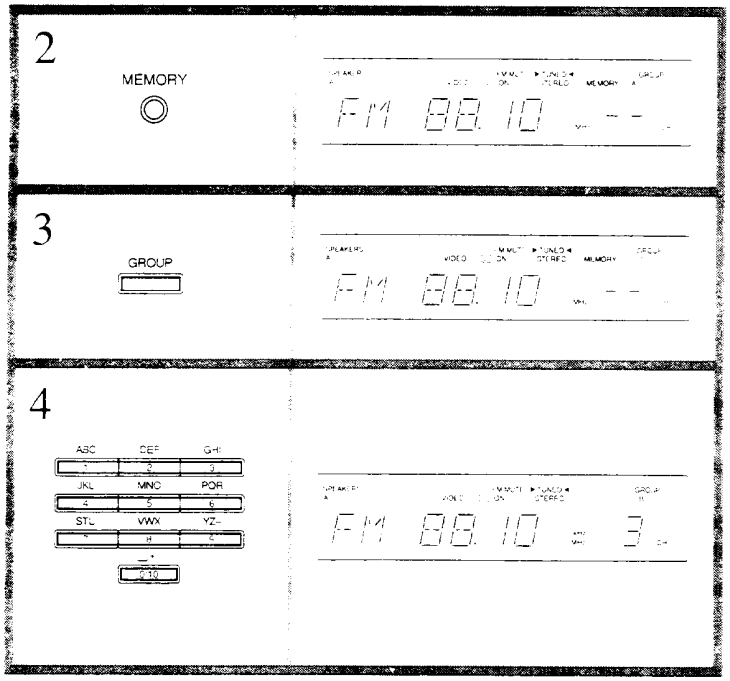



## The APR system (FM mode)

This unit is equipped with an APR system to help tune in FM stations.
When receiving an FM station using manual or direct tuning, RF MODE LOCAL/DX and STEREO MODE AUTO/MONO settings are made automatically, according to the station being received.
The APR system automatically sets the gain of the RF section to DX or LOCAL according to the quality of the signal being received. The RF MODE will indicate LOCAL when sufficient signal is received.
If the MONO indicator lights up while a station is tuned in, the station will be received in mono even if it is a stereo station.
The STEREO MODE AUTO/MONO settings that the APR system makes can be changed by pressing the FM MUTE/MODE button.

# Using preset stations

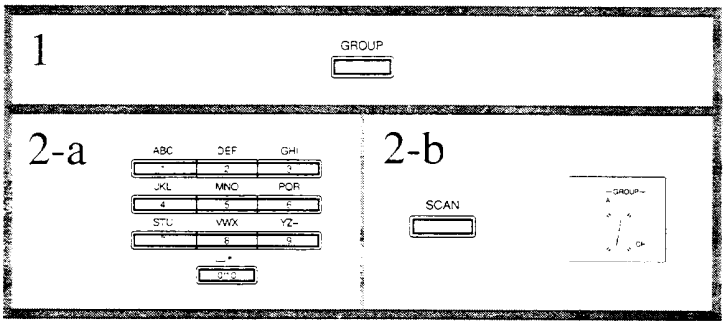



## Programming radio stations

1. **Select the frequency that you want to store in the memory.**
   (See Receiving stations on page 16.)
2. **Press the MEMORY button.**
   The MEMORY indicator will light for 8 seconds.
3. **While the MEMORY indicator lights, press the GROUP button to choose the desired group.**
   The group shown on the display changes in the following order each time the button is pressed: A → B → C →A.
4. **Select the desired memory number using the number buttons.**
   Use the 0/10 number button to enter a 10.

- Since ten AM or FM stations can be stored in each group (A, B or C), a total of 30 stations can be stored in the memory.
- If the FM station received is an RDS station with a PS (Program Service Name), the frequency display will change to the PS display.
  If there is no PS, the frequency display will not change.
  Refer to pages 18 and 19 for the RDS function.
  (RDS function is only for features of TX-8410R.)

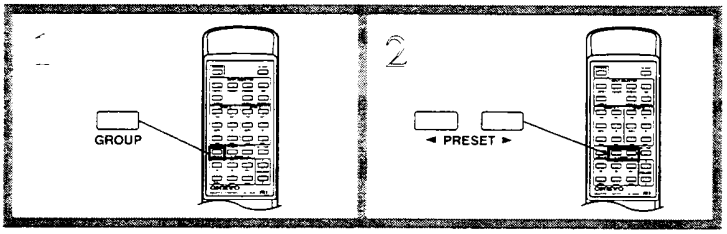



## Recalling preset stations

1. **Press the GROUP button to select the desired group.**

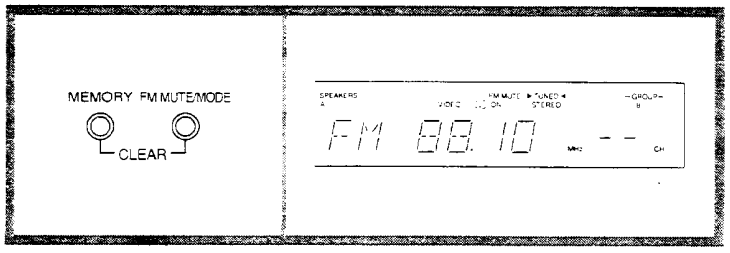
2-a. **Input the memory number you wish to receive by using the number buttons.**

2-b. **Press the PRESET SCAN (for TX-8410) or SCAN (for TX-8410R) button.**
   Each station stored in the group chosen in step 1 will be received for 5 seconds (for each station).
   When the station that you want is found, press the PRESET SCAN or SCAN button again and scanning will stop.




**Use Remote control**

1. **Press the GROUP button and choose the group.**
2. **Press the PRESET ( ◄ or ► ) button.**
   After the last number of GROUP C is reached, scanning will restart at GROUP A.




## Cancelling preset stations

1. **Select the station as explained in the previous section.**
2. **Press the FM MUTE/MODE button while holding down the MEMORY button.**
   "– –" will be shown on the channel display.

- Once the preset station has been cancelled, the memory location can be used to store another station.

# Receiving RDS (TX-8410R Only)

RDS reception is only available on the model TX-8410R, and only in areas where RDS broadcasts are available.

### What is RDS?

Many FM stations now transmit RDS signals which give additional information. RDS provides you with various services so that (for example) you can choose a station broadcasting your favorite categories of music, or other information. The information on the right side is available on this unit.

**PS: Program Service Name**
When an RDS station broadcasting PS information is received, the name of the station will be displayed instead of the frequency.

**PTY: Program Type**
When an RDS station broadcasting PTY information is received, the type (category) of the broadcast will be displayed.

**TP: Traffic Program**
When an RDS station broadcasting TP information is received, the traffic information will be displayed.

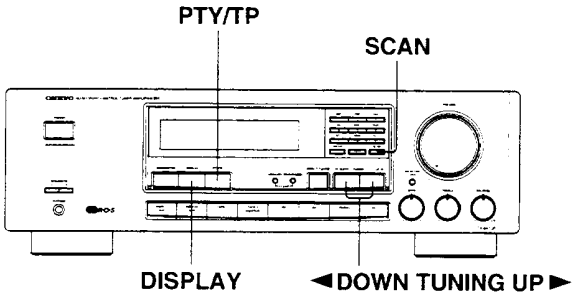
**RT: Radio Text**
When an RDS station broadcasting RT information is received, the information received from the station will be shown on the display.

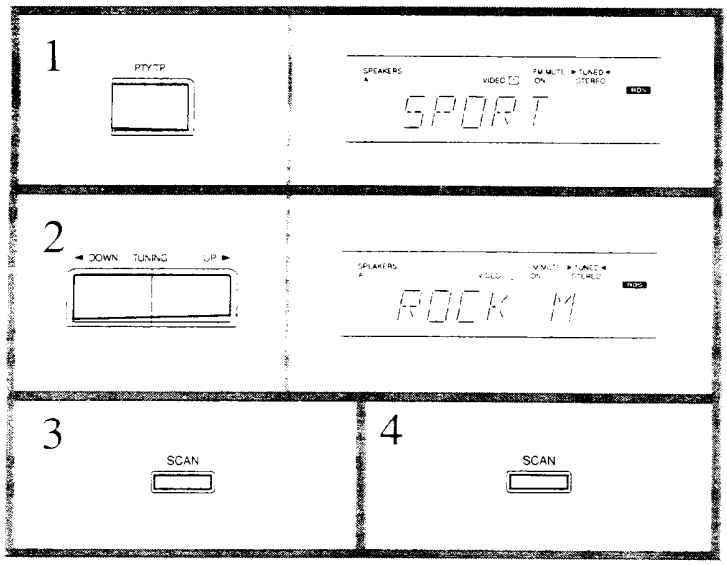
**NOTE:**
In some cases, the characters displayed on the display of the TX-8410R may not be exactly the same as the ones broadcast by the radio station. The TX-8410R cannot display lower case letters, and will change them to upper case. If strange characters appear in the display, it is because characters are being received that cannot be correctly displayed by the TX-8410R. They do not indicate a malfunction of the unit.

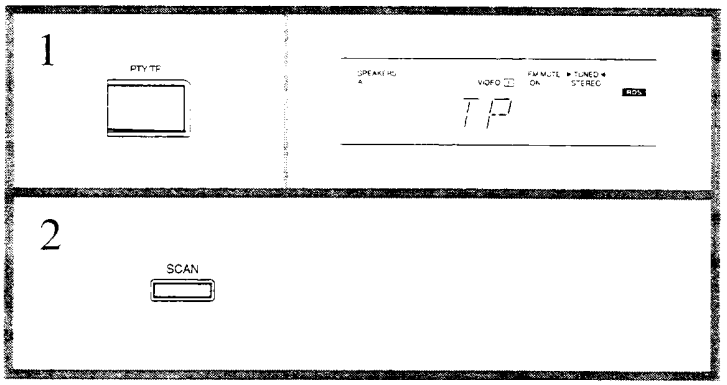
### PTY Classifications in Europe

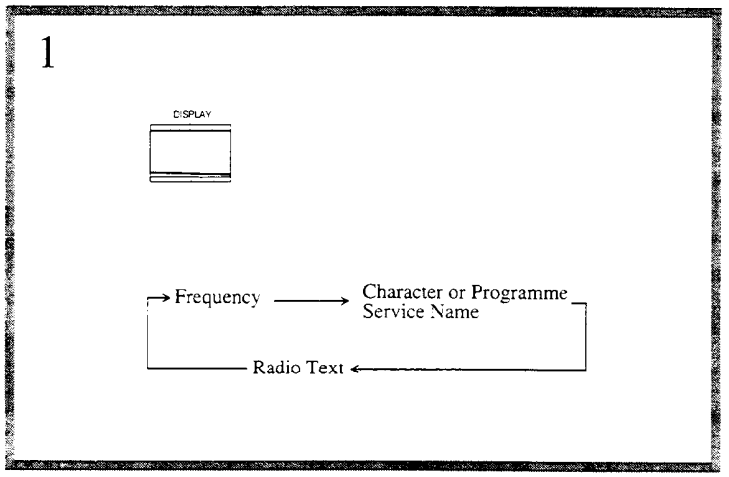
| | | | |
|---|---|---|---|
| 0 | NONE | **None** | No program type or undefined. |
| 1 | NEWS | **News reports** | Reports on current events and happenings. |
| 2 | AFFAIRS | **Current affairs** | Topical reporting of current affairs, often with a wider range of topics than news reports. |
| 3 | INFO | **Information** | General information such as weather forecasts, consumer affairs, medical help etc. |
| 4 | SPORT | **Sport** | Live sports action, sports news and interviews. |
| 5 | EDUCATE | **Education** | Formal educational programs. |
| 6 | DRAMA | **Drama** | Radio plays and serials. |
| 7 | CULTURE | **Culture** | Cultural programs (including religious affairs). |
| 8 | SCIENCE | **Science and technology** | Programs about the natural sciences and technology. |
| 9 | VARIED | **Varied** | Speech based programs not covered by the above categories eg. quizzes, panel games, comedy, etc. |
| 10 | POP M | **Pop music** | Popular commercial music, usually included in past or present sales charts. |
| 11 | ROCK M | **Rock music** | Popular music with a more specialist appeal, often not included in sales charts. |
| 12 | M.O.R. M | **Middle of the road music** | Easy listening music as opposed to Pop, Rock or Classical. |
| 13 | LIGHT M | **Light classics** | Classical music for general rather than specialist appreciation. |
| 14 | CLASSICS | **Serious classics** | Performances of major orchestral works, symphonies, chamber music etc. and including Grand Opera. |
| 15 | OTHER M | **Other music** | Music styles not covered by the above categories, eg. Jazz, Rhythm & Blues, Folk, Country, Reggae. |

# Receiving RDS (TX-8410R Only)




## Searching for a station which broadcasts your favorite category (PTY scan)

1. **Press the PTY/TP button, and the program type of the currently selected station will be shown on the display (for example, "SPORT").**
   If the station you are receiving is not broadcasting RDS, "NOT RDS" (this is not an RDS station) will be shown on the display.
2. **Use the TUNING UP/DOWN buttons to select another program type (PTY) (for example, "ROCK M").**
   See the PTY descriptions on the previous page.
3. **Press the SCAN button to start searching for the chosen PTY station.**
   When a station is received with the desired PTY, the scanning stops for approximately 5 seconds, before the unit starts scanning again.
4. **When the desired station is reached, press SCAN button again to stop scanning.**

## Receiving RDS traffic information

If the station you are listening to is not an RDS station, this function cannot be used.

1. **Press the PTY/TP button until "TP" appears on the display.**
   If "TP" is shown on the display, it indicates that the current station is broadcasting traffic information.
2. **Press the SCAN button to start searching for a TP station.**
   When the unit receives a TP station, it stops scanning.
   If the unit cannot receive any signal, "NOT FIND" (cannot find the station) is shown on the display.

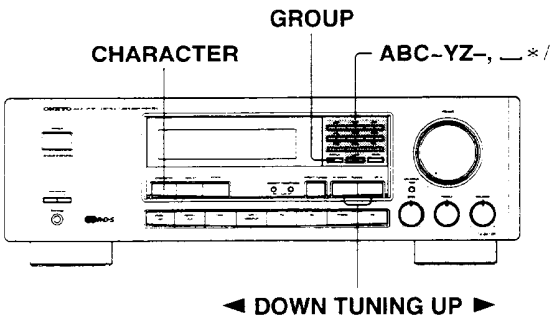
## Displaying radio text (RT)

If the station you are listening to is not an RDS station, this function cannot be used.

1. **Each time you press the DISPLAY button, the display changes as shown in the left.**

If the current station you are listening to is not an RDS station, only the frequency of the station or the station name, if you have entered it (see page 20) appears. (If there have been no characters entered, only the frequency is shown.)
When RT is received, it can sometimes take between a few seconds and 15 seconds (more or less) to show RT on the display.
Sometimes the following messages will be shown on the display.
**WAIT:** indicates that it requires more time to receive the RT information. When the information is received, the characters will scroll across the display.
**NO TEXT:** this appears for 3 seconds and indicates that even though an RDS station is being received, there is no RT information included.

# Entering station names (TX-8410R only)

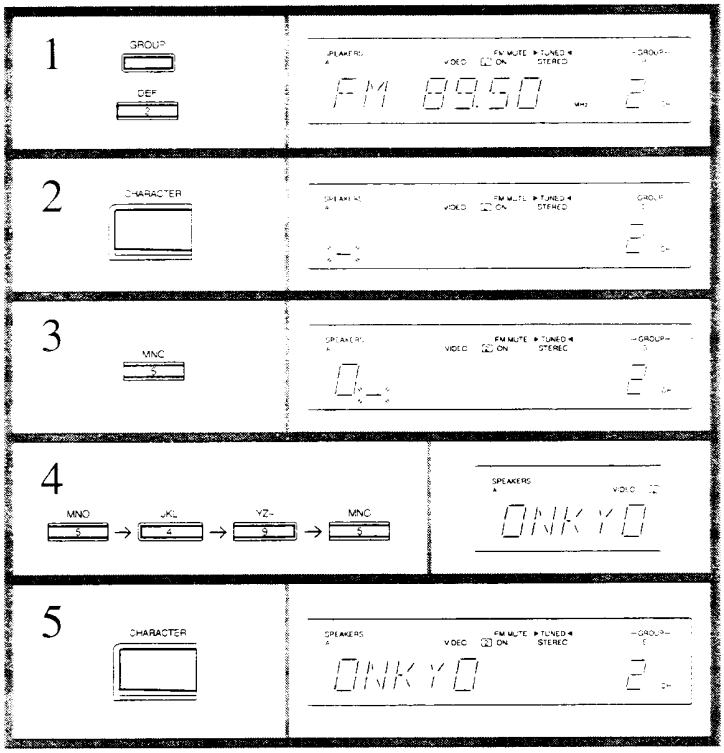



Characters can be entered during reception of an AM or FM broadcast station.
This function enables you to memorize a maximum of 8 characters consisting of alphabetics, some symbols and numbers, for instance, representing broadcasting names, for each preset station.
If you attempt to enter characters while receiving an FM broadcast RDS station, "RDS...PS" is displayed and characters cannot be entered.

**Characters which can be input**

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z – 1 2 3 4 5 6 7 8 9 0 _ * /

Note: _ indicates a space.




## Entering new characters

To name 2 CH of GROUP B as "ONKYO", for example, operate as follows. (Example: FM broadcast at 89.50 MHz has been memorized into 2 CH of GROUP B).

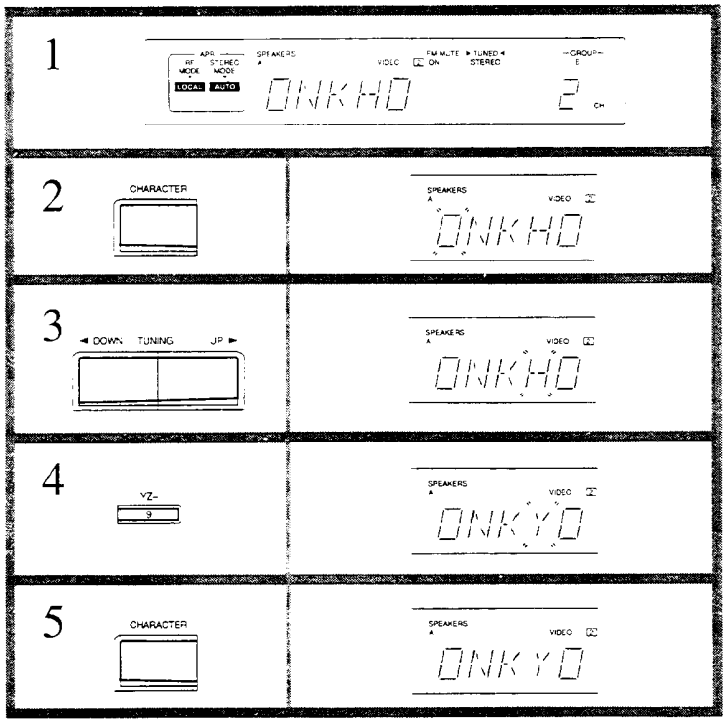
1. **Press the GROUP button until "B" letter appears on the display, then press the number of "2" button.**
   The memorized broadcast station is received.
2. **Press the CHARACTER button.**
   The frequency in the display goes off and "_" flashes.
3. **To enter O from "ONKYO", press the 5/MNO button.**
   Pressing the button each time changes the character from 5 to M, N, and O, one at a time. Select "O".

   →5 ⟶ M ⟶ N ⟶ O

- "_" will move to the next character. (If you do not press the number button for one second or more, "_" will automatically move to the next character.)

4. **To enter "N" "K" "Y" "O" letter.**
   To enter N from "ONKYO", press the 5/MNO button and select "N". Then, to enter K from "ONKYO", press the 4/JKL button and select "K".
   Proceed in a similar way to enter the remaining letters.
5. **Press the CHARACTER button once again to complete the operation.**

- If you have not pressed a button for 16 seconds, the operation will complete automatically.
- Press the DISPLAY button when you wish to check the frequency while you are entering the characters.




## Changing existing characters

1. **Select the station whose name you wish to change. (See the previous sections.)**
2. **Press the CHARACTER button.**
   "_" appears at the first character and it flashes alternately with the character.
3. **Press the TUNING UP/DOWN button and move "_" to the character you want to change.**
   "_" moves to the right when pressing the UP ► button and moves to the left when pressing the ◄ DOWN button.
4. **Enter the desired character.**
   The previous character is replaced with a new character.

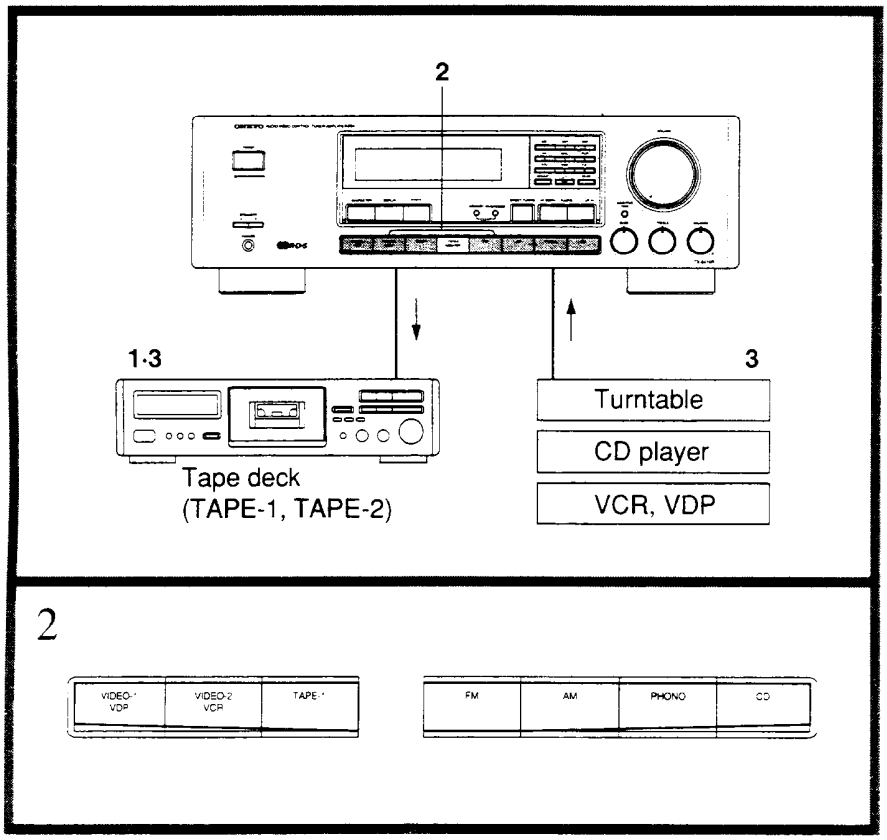
- When you want to delete a character, press the DIRECT TUNING button. The character is deleted, and the characters on the right move to the left by one space.

5. **Press the CHARACTER button to store the character.**

## Clearing all of the characters stored in memory

1. **Press the CHARACTER button.**
2. **While pressing the MEMORY button, press the FM MUTE/MODE button.**
   All the characters entered for this station will be cleared.

# Recording a source




## Recording an audio source

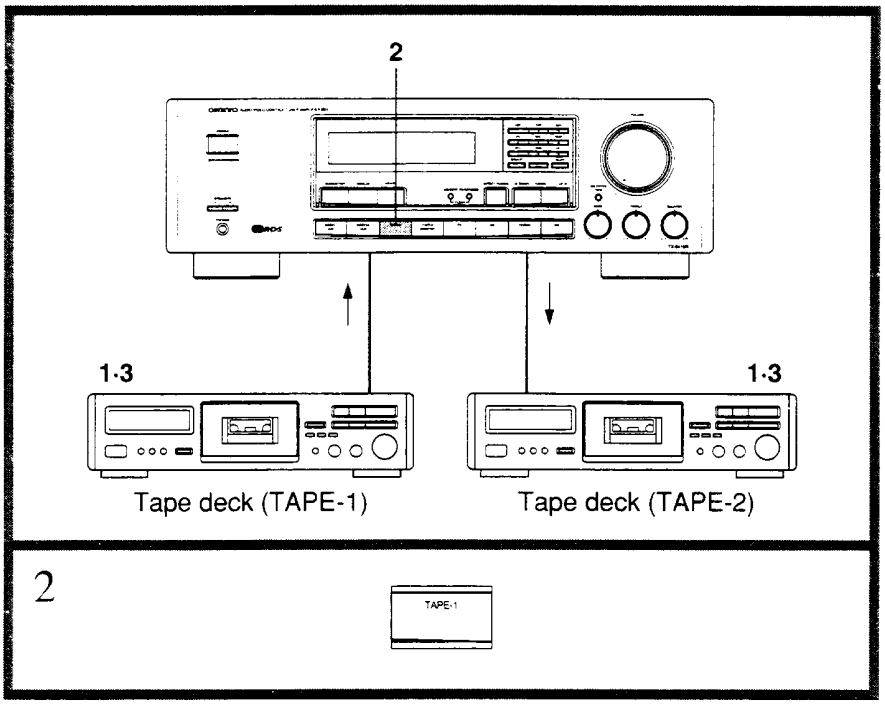
Please read the instruction manuals concerning the operation of each unit.

1. **Insert a blank tape into the tape deck.**
2. **Press the button of input selector for the source from which you want to record.**

- When VIDEO-1/VDP or VIDEO-2/VCR is selected, it will (naturally) only record the audio.
- When FM or AM is selected, set the tuner to the station you want to record from.
- When TAPE-1 is selected, it will record to the TAPE-2 REC jacks.
- When either VIDEO-1/VDP, VIDEO-2/VCR, FM, AM, PHONO or CD is selected, you are able to record to both the TAPE-1 and TAPE-2 REC jacks.

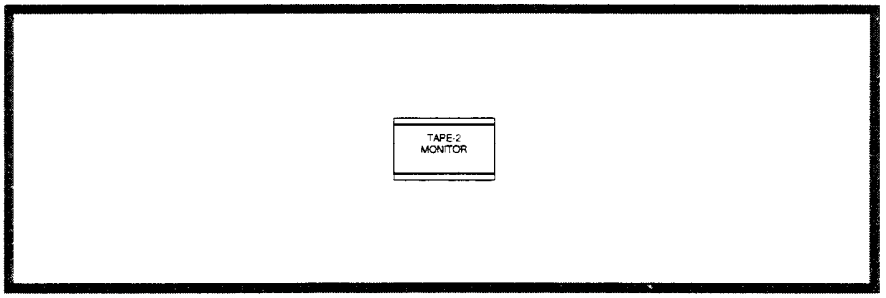
3. **Put the tape deck in the recording mode. Begin playing the source.**

Set the proper recording level using the controls on the tape deck used for recording. Also, during recording and dubbing operations, if any controls (bass, treble etc.) on this unit are changed during recording and dubbing operations, the tone effects will not change.




## Tape-to-tape dubbing

1. **Load the original tape in deck 1 and the blank tape in deck 2.**
2. **Press the TAPE-1 button.**
3. **Put tape deck 1 in the playback mode and tape deck 2 in recording mode.**

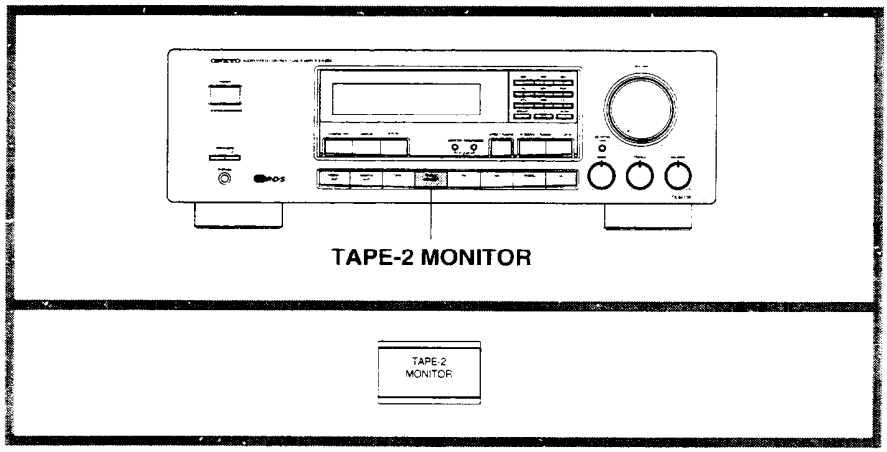



## Monitoring

**The source signal can be monitored through the speakers or headphones, when TAPE-2 MONITOR is turned off.**

If tape deck 2 has three heads, the just-recorded signal can be monitored (when the TAPE-2 MONITOR is turned on). Refer to the tape deck instruction manual for more details.

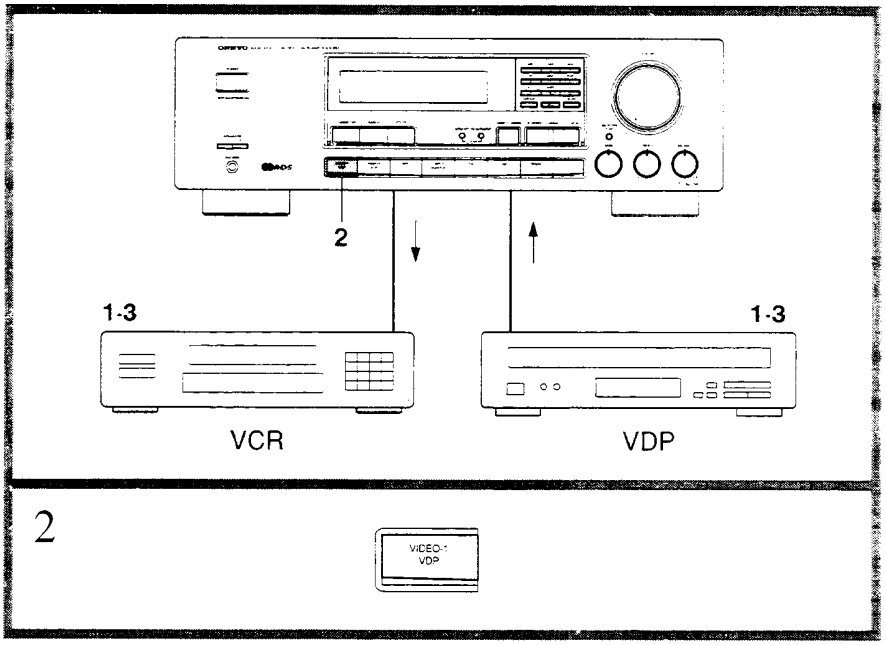
# Recording a source




## Using a graphic equalizer

Connect the graphic equalizer to the TAPE-2 jacks on the rear panel.
If a second tape deck is used, connect it to the tape jacks on the graphic equalizer. Also see "Connecting a tape deck" on page 7 when making connections.

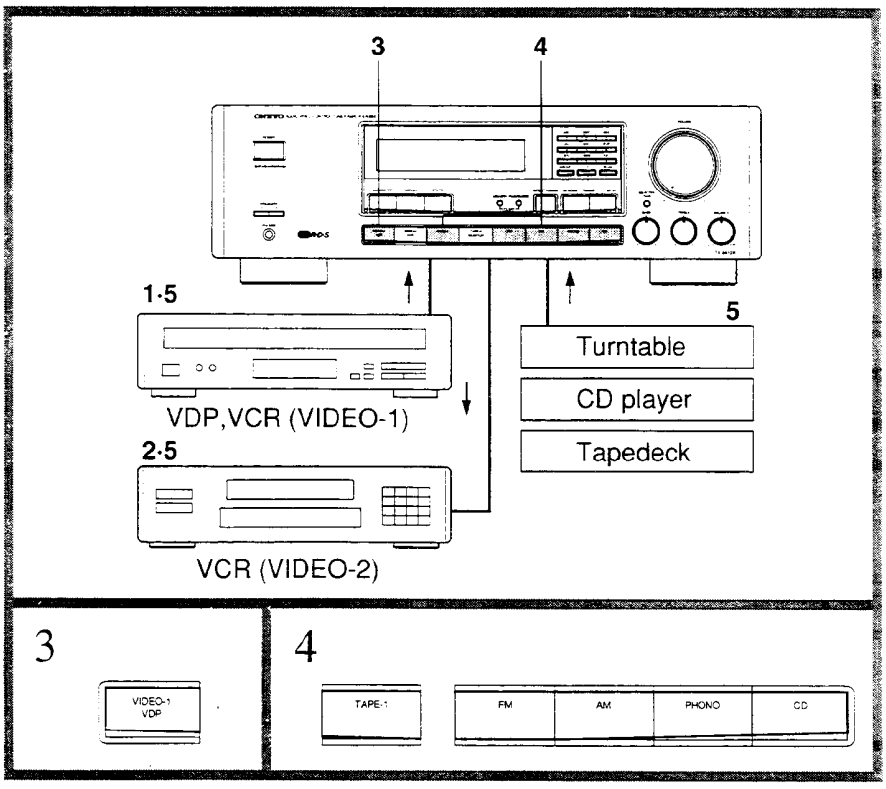
**Press the TAPE-2 MONITOR button.**
Follow the graphic equalizer operating instructions.
To record an equalized signal, use tape deck 2 (connected to the equalizer) for recording.




## Video disc player (or video camcorder) to VCR recording

Video disc programs can be recorded onto a VCR (VIDEO-2).

1. **Load a disc in the video disc player, and a blank tape in the VCR (VIDEO-2).**
2. **Press the VIDEO-1/VDP button.**
3. **Begin playback on the video disc player and recording on the VCR.**




## Adding new sound to a video tape during video editing

During video tape editing, you can add the desired sound on the recording VCR from various audio program sources.

1. **Insert the LD or tape that you want to record into the VDP or VCR connected to VIDEO-1.**
2. **Insert a blank video tape in the VCR connected to VIDEO-2.**
3. **Press the VIDEO-1/VDP button.**
4. **Select the audio program source (TAPE-1, FM, AM, PHONO, CD).**
5. **Begin playback of the video connected to the VIDEO-1 and also start the sound source, then start recording on the VIDEO-2 VCR.**

Refer to the video disc player, video camcorder or VCR instruction manuals for additional information.

# Trouble shooting guide

If a problem occurs while you are using the remote control, first operate the unit using the front panel controls to confirm that it is not due to a malfunction (or worn out batteries) of the remote control.

| Trouble | Cause | Remedy |
|---|---|---|
| No power. | • Power cord is disconnected.<br>• There is external noise in the computer circuits of this unit.<br>• AC fuse blown. | • Connect power cord.<br>• Turn the power button off and then on again or remove the AC plug from the outlet and then plug it again.<br>• Contact your Onkyo Service Center. |
| Power on but no sound. | • TAPE-2 MONITOR button is on.<br>• MUTING button is on.<br>• Bad connections.<br>• Amplifier protection circuitry has been activated. ('PROTECT' will be displayed.) | • Switch to off.<br>• Switch to off by the remote control.<br>• Check connections, speaker leads, etc.<br>• Contact your Onkyo Service Center. |
| Hum, low-frequency noise. | • Poor or no input ground.<br>• Poor or no phono motor ground.<br>• The placement of the audio connection cables on the rear panel is incorrect. | • Check outer conductor of input plugs.<br>• Check for proper ground connection.<br>• Adjust the placement of the cable to reduce hum. |
| Howling when the volume is turned up. | • Turntable and speakers are too close together. | • Move them farther apart. |
| Rough or scratchy sound. High range is not clear. | • Stylus of turntable pick-up is worn.<br>• Turntable stylus tip is dirty.<br>• Treble control too high. | • Replace.<br>• Clean.<br>• Turn treble control down. |
| AM stations cannot be received. | • AM loop antenna is not attached. | • Connect the included AM loop antenna to the AM antenna terminals. |
| Buzzing noise on AM (particularly conspicuous at night or with weak stations). | • Noise from electrical apparatus such as fluorescent lamp. | • Move the AM loop antenna to different position.<br>• Set up an outdoor AM antenna. |
| High-pitched noise or buzzing noise on AM. | • Noise from TV set. | • Place the AM loop antenna as far as possible from the TV.<br>• Move unit away from TV set. |
| Crackling noise on AM, FM. | • Noise caused by turning fluorescent lamp on and off.<br>• Noise from automobile ignition. | • Move antenna as far as possible from the fluorescent lamp.<br>• Install an FM outdoor antenna as far as possible from the road.<br>• Change the position or direction of the outdoor antenna. |
| TUNED and STEREO indicators light but sound is distorted and stereo separation is bad. | • Station is too strong.<br>• Multiple reflection of the radio waves because of tall buildings or mountains. | • Change to T-shaped antenna.<br>• Use antenna which has better directivity and select a point where the distortion is least. |
| TUNED and STEREO indicators flicker and hiss is heard on FM. | • Station is too weak.<br>• Stereo FM broadcasts cover only about half the distance of an ordinary broadcast. | • Install an outdoor FM antenna.<br>• Change the position or direction of the outdoor antenna. |
| No station is recalled when a PRESET button is pressed. | • The power cord has been unplugged for a long time. | • The memory contents are lost. Store all stations again. |
| The RDS function does not work. | • It is not RDS station.<br>• The reception station signal is too weak.<br>• Too much interference. | • Receive an RDS station.<br>• Install an outdoor FM antenna.<br>• Change the position or direction of the outdoor antenna.<br>• Move the antenna as far away as possible from the fluorescent lamp.<br>• Install an outdoor FM antenna as far away as possible from the road. |
| Front panel controls function but remote control does not. | • No batteries in remote control.<br>• Batteries have worn out. | • Insert batteries.<br>• Replace batteries. |

- Also refer to the respective instruction manuals of the video disc player, video cassette recorder, TV monitor, etc., being used.

# Specifications

## AMPLIFIER SECTION

Power Output

| | |
|---|---|
| U.S.A. & Canadian models: | 100 watts per channel, min. RMS at 8 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.2% T.H.D. |
| Other area models: | Continuous output<br>2 × 100 watts at 4 ohms, 1 kHz (DIN)<br>2 × 65 watts at 8 ohms, 1 kHz (DIN) |
| Total Harmonic Distortion: | 0.08% at power 30 watts, 8 ohms |
| IM Distortion: | 0.08% at power 30 watts, 8 ohms |
| Damping Factor: | 60 at 8 ohms |
| Sensitivity and Impedance | |
| Phono: | 2.5 mV/50 kohms |
| CD/Tape Play: | 150 mV/50 kohms |
| Tape Rec: | 150 mV/2.2 kohms |
| Phono Overload: | 120 mV RMS at 1 kHz, 0.5% T.H.D. |
| Frequency Response: | 20 Hz to 30 kHz, ±1 dB |
| RIAA Deviation: | 20 Hz to 20 kHz, ±0.8 dB |
| Tone Control | |
| Bass: | ±10 dB at 100 Hz |
| Treble: | ±10 dB at 10 kHz |
| Signal-to-Noise Ratio | |
| Phono: | 80 dB (IHF A, 5 mV input) |
| CD/Tape: | 100 dB (IHF A) |

## VIDEO SECTION

| | |
|---|---|
| Signal sensitivity and impedance: | 1 Vp-p, 75 ohms<br>(VDP/VCR input, output) |

## TUNER SECTION

### FM

| | |
|---|---|
| Tuning Range: | 87.5 — 108.0 MHz |
| Usable Sensitivity | |
| Mono: | 11.2 dBf, 1.0 µV (75 ohms) |
| Stereo: | 17.2 dBf, 2.0 µV (75 ohms) |
| 50dB Quieting Sensitivity | |
| Mono: | 18.2 dBf, 2.2 µV (75 ohms) |
| Stereo: | 38.2 dBf, 22 µV (75 ohms) |
| Capture Ratio: | 1.5 dB |
| Image Rejection Ratio | |
| U.S.A. & Canadian models: | 40 dB |
| Other area models: | 85 dB |
| IF Rejection Ratio: | 90 dB |
| Signal-to-Noise Ratio | |
| Mono: | 73 dB |
| Stereo: | 67 dB |
| Alternate Channel Attenuation: | 55 dB |
| Selectivity: | 50 dB (DIN) |
| AM Suppression Ratio: | 50 dB |
| Total Harmonic Distortion | |
| Mono: | 0.15% |
| Stereo: | 0.25% |
| Frequency Response: | 30 Hz — 15 kHz, ±1.5 dB |
| Stereo Separation: | 45 dB at 1 kHz<br>30 dB at 100 Hz — 10 kHz |

### AM

| | |
|---|---|
| Tuning Range | |
| U.S.A. & Canadian models: | 530—1,710 kHz (10 kHz steps) |
| European & Australian models: | 522—1,611 kHz (9 kHz steps) |
| Worldwide models: | 531—1,602 kHz (9 kHz steps)<br>530—1,710 kHz (10 kHz steps) |
| Usable Sensitivity: | 30 µV |
| Image Rejection Ratio: | 40 dB |
| IF Rejection Ratio: | 40 dB |
| Signal-to-Noise Ratio: | 40 dB |
| Total Harmonic Distortion: | 0.7% |

## GENERAL

| | |
|---|---|
| Power Supply | |
| U.S.A. & Canadian models: | AC 120 V, 60 Hz |
| European & Australian models: | AC 230 V, 50 Hz |
| Worldwide models: | AC 220 V and 120 V switchable, 50/60 Hz |
| Power Consumption | |
| U.S.A. & Canadian models: | 2.8 A (300 W) |
| Other area models: | 220 W |
| Dimensions (W × H × D): | 455 × 150 × 322 mm<br>17-15/16″ × 5-7/8″ × 12-11/16″ |
| Weight: | 9.3 kg , 20.5 lbs. |

## REMOTE CONTROL RC-294S

| | |
|---|---|
| Transmitter: | Infrared |
| Signal range: | Approx. 5 meters, 16 ft. |
| Power supply: | Two "AA" batteries (1.5 V × 2) |
| Dimensions (W × H × D): | 55 × 18 × 194 mm<br>2-3/16″ × 11/16″ × 7-5/8″ |
| Weight: | 100 grams, 3.5 oz. (including batteries) |

Specifications and features are subject to change without notice.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